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JANUARY, 1964 ONTARIO HYDRO NEWS

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HYDRO NEWS, VOL. 51, NO. 1

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A REPORT FROM

It is traditional at the threshold of a new year to review developments of the past 12 months and to anticipate progress as it may be expected to unfold in the period ahead. There are grounds on this occasion, I think, for satisfaction in both respects. Much has been achieved during 1963 and a stimulating challenge lies before us.

Looking back over our operations in 1963, I am particularly impressed by the vital role our coal-burning thermal-electric plants have come to play in helping us meet the vast power requirements of this province. The fact that these installations produced more than twice as much energy as in the previous year explains much about our operations in 1963. Low water levels prevailed throughout the year in Southern and Northeastern Ontario. In January the water shortage combined with adverse ice conditions on the Niagara River to cut hydro-electric output sharply. During January our thermal plants produced a record 37 per cent of the total power generated in Southern Ontario.

During the year our consumption of coal increased to 2,867,000 tons, compared with 1,459,000 tons in 1962. As below normal stream flows are expected to continue for some time, our coal-burning facilities are likely to remain much to the fore in the year ahead.

Our interconnections with neighboring utility systems are also of growing importance, both from the economic standpoint and as a service security measure. Although total purchases of power over these interconnections declined in 1963, this outside energy displaced substantial amounts which we would otherwise have had to produce in our thermal plants at somewhat higher cost. Transfers from our systems were also made, of course, during periods

HE GENERAL MANAGER



J. M. Hambley

lesser demand — an exchange which works to the mual advantage of the participating parties.

Last September our East System began operating in electral synchronism with Hydro-Quebec, improving security both systems. Through interconnections, we are now erating in parallel with a growing electrical power grid that ich has a capacity of approximately 150,000,000 kilotts at the present time and stretches over half of the orth American continent.

I should point out here that the substantial increase in r coal purchases resulting from subnormal streamflows 1963 did not affect interim rates. These costs were coved by withdrawals from the stabilization of rates reserves a fund established to insure against abrupt changes in a cost of power due to below normal stream flows and her contingencies.

But other factors, including interest rates on new borwings that were higher than our average and increased st of labor and services, contributed to higher costs of oduction in 1963, at the wholesale level.

It is noteworthy, however, that despite the many influces tending to force costs upward, the wholesale cost of ctricity in Ontario has been remarkably stable over the st decade. Based on 1964 estimates of cost, the average tolesale rate to municipal utilities will have increased by six per cent since 1953.

The increasing demand for electric power, reflecting in rt the steady pace of the province's economic growth, is notable last year. By the end of 1963, primary peak mands had climbed to 6,797,000 kilowatts—up 8.0 per nt from December, 1962. This is the first year since

1959 that the peak has exceeded the long-term average increase of 6.5 per cent.

Looking over the past decade, during which the demand for power approximately doubled, it is interesting to note that productivity per employee has increased impressively. To some extent this has been achieved by the introduction of automation, mechanization and other improved methods in our continuing search for economies. But it also directly reflects the efficiency and devotion of our employees.

By the end of 1963 our resources totalled 7,756,000 kilowatts, including 600,000 kilowatts of new generating capacity from the Lakeview, Thunder Bay, Otter Rapids and Little Long projects. Capital costs to finance these and other works in 1963 totalled \$108 million, slightly less than in 1962. We estimate our capital construction costs for 1964 at \$104 million. As in 1963, thermal plant costs are expected to represent the largest single expenditure.

Five major projects are presently underway including the thermal plant at Lakeview, the nuclear-electric station at Douglas Point, the Harmon and Kipling developments on the Mattagami River and the extra-high-voltage transmission line. Our forecasts indicate that power demand this year will rise about six per cent, close to the long-term average. But we must continue to strive for increased efficiency by cutting costs wherever possible and by selling more killowatt-hours in the residental, commercial and industrial fields. Only in this way can we hope to maintain the economies and low rates which result from increases in the per customer use of electricity and protect the huge investment in facilities which Ontario Hydro and the associated municipal utilities operate for the people of Ontario.

J. Mambly

ther details of major developments during 1963 and some indication of plans for the future are on the following pages.

POWER FROM WATER

While thermal-electric generation was much in the limelight during 1963, there was no slacking in the Commission's continuing program to harness those remaining hydraulic sites which are capable of economic development. As the result of projects completed in the last 12 months, Ontario Hydro's dependable hydraulic capacity exceeded the five million kilowatt mark for the first time.

Men and machines pitted mind and muscle power against rugged rockland, swamp and bush in remote Northeastern Ontario, to develop the water resources of the James Bay watershed. By year's end four new generating units, with a total capacity of 209,000 kilowatts were brought into service at Little Long and Otter Rapids.

Little Long G.S. is located on the Mattagami River 42 miles north of Kapuskasing while Otter Rapids G.S. is some 30 miles to the west on the Abitibi River.

Preliminary construction stages were reached at two additional power sites on the Mattagami River within 15 miles of Little Long. The Harmon and Kipling stations when completed by 1966 will bring the total output from this new Northeastern power complex to 560,000 kilowatts.

At Harmon, workmen are finishing rock excavation and concreting is underway in the headworks area. Downstream, at Kipling, the crews are excavating the diversion channel and constructing cofferdams.

A project launched last winter, called the Newpost Creek Diversion, was completed by mid-October and it altered the course of the Little Abitibi River so that it flows into the Abitibi proper above the Otter Rapids station, providing additional flow at this site.

Hydro staff is engaged in engineering studies in preparation to divert the course of the Opasatika River so as to increase the flow at all three Mattagami River plants. When this project is completed, Opasatika waters will flow through an excavated channel about

6,200-feet long and then through a series of tributaries to a point 10 miles upstream from Little Long G.S.

At year's end Ontario Hydro's total dependable hydraulic capacity stood at 5,030,750 kilowatts. A number of sites, mostly in Northeastern Ontario, remain to be developed.

The pivotal point of Hydro's \$200,000,000 hydro-electric complex on the James Bay watershed, including the EHV Transmission line, is the Pinard Transformer Station which came into service late in the year. Power from the Little Long and Otter Rapids generating stations is being transmitted from Pinard to Hanmer, near Sudbury, at 230,000 volts.

But even as these new and efficient plants take shape, some of the small generating stations were being discharged from service after performing faithfully for many decades. Rat Rapids G.S. in Hydro's Northwestern Region was retired from service last year. Its two units had a combined capacity of 2,900 kilowatts.

At special ceremonies, plaques were erected at three sites within a 50 mile radius in the Muskoka area commemorating the retirement of three hydro plants that were taken out of service a few years ago. Among them was the first generating station built by Ontario Hydro, the 750-kilowatt plant at Wasdell Falls on the Severn River. It was from this rather humble beginning that the Commission went on to develop engineering and construction forces which have since been responsible for some of the greatest hydro-electric developments in the country.

As Robert Boyer, second vice-chairman of Ontario Hydro, explained at the commemorative ceremonies attending the erection of the plaques:

"Old methods and engineering concepts have to be discarded and smaller and older stations, for reasons of economy and efficiency, must be retired."









Right: Workmen check the fixed bla propeller type turbine assembly at Lit Long. Top to bottom, above: (1) Lit Long Generating Station came into serv in October, 1963. (2) Construction h begun at Kipling Generating Station due be operational in 1966. (3) Thirte miles downstream from Little Long, we is underway at Harmon Generating Static (4) Officially opened last year, Of Rapids Generating Station is operated remote control from Pinard T located 23 miles to the sou



POWER FROM COAL

The importance of thermal-electric generation in Ontario Hydro's overall power-producing picture came into sharp focus in 1963. Continued below-normal stream flows and severe icing conditions on the Niagara River forced cut-backs in output from hydro-electric stations placing a heavier production burden on the coal-burning thermal plants. Together, the Richard L. Hearn, Lakeview and J. Clark Keith stations produced about 25 per cent of the total energy generated throughout the Hydro systems in 1963.

But the increasing emphasis on thermalelectric generation is more fundamental than such short term contingencies. Even under ideal operating conditions, the shift to fuelburning facilities will continue as the few remaining undeveloped hydraulic sites become further depleted. At the same time, electrical demands continue to double every 10 to 12 vears.

In line with increasing dependence on coalfired steam plants, coal requirements have spurted upwards. Early in the year, Ontario Hydro signed a contract with Dominion Coal Company of Nova Scotia, for the purchase of 2,850,000 tons of Nova Scotia coal to be delivered over the period from 1963 to 1967. Additional coal requirements must be filled from United States sources.

Hydro's total thermal-electric capacity reached 2,108,000 kilowatts with the official acceptance for service of the 100,000 kilowatt Thunder Bay Generating Station at the end of July. At present the Thunder Bay station at Fort William serves as standby to provide security of service to Northwestern Ontario in the event of low stream flows or a sharp increase in energy demands.

Good progress continued on No. 3 and No. 4 units at the Lakeview Generating Station, near Toronto, The No. 2 unit was accepted for service early last year bringing the plant's installed capacity to 600,000 kilowatts.

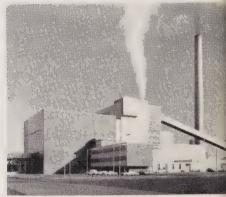
A 230-ton steam turbine type generator stator with a capacity of 300,000 kilowatts, the largest ever built in Canada, was delivered in December for the No. 3 unit. Mid-April is the in-service date. In the meantime, structural work for No. 4 unit has been completed and workmen are erecting the boiler and other equipment to reach the target date of late fall, when this unit is scheduled for service.

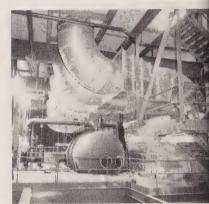
Early in November contracts were awarded for the main framing of generating units 5 and 6. The job includes supply of secondary steel for gratings and similar uses. This work is scheduled for completion by 1965.

To bring Lakeview Generating station to its full potential, another two units are to be added, similar to those now being installed. Two, 300,000-kilowatt steam turbo-generators were ordered late in December for the 7th and 8th units. When completed by 1968, the Lakeview development will have a total output of 2,400,000 kilowatts, making it the largest thermal-electric power plant in Canada, and among the largest in the world.

Meanwhile, plans are proceeding for important additional thermal-electric generating capacity to be derived from both coal and uranium-fueled plants.









Shooting into the sun, photograph Chris Almey captured this dramatic win view of Lake Ontario with Lakevi G.S. in silhouette. From top to botto above: (1) Largest steam turbo-general ever built in Canada is lowered into pla at Lakeview G.S. (2) Thunder Bay G at Fort William was accepted for serv in July. (3) Huge heating and ventilati ducts of unit No. 3 at Lakeview. (4) Aer view of Lakeview suggests immens of proje



POWER FROM THE ATOM

Canada's first full-scale nuclear power station at Douglas Point took a giant stride towards fulfilling its 1965 operating objective with the arrival last summer of the 60-ton reactor vessel. Shipped entirely by water on the 800-mile trip from the Montreal manufacturing firm, its immense size (22 feet by 17 feet) dictated this method of transportation.

Earlier in the year, marking the start of heavy equipment delivery, the main 230,000-kva transformer weighing 200 tons was brought to the site. It was one of the heaviest loads to ever travel on an Ontario highway.

Two 120-ton reactor endshields have been installed in the vault. Fitting of these endshields was an exacting job demanding tolerances to thousandths of an inch. Presently nearing completion are eight boiler units in the reactor building which will supply steam to the turbine.

Being built by the Atomic Energy of Canada Limited, with the co-operation of Ontario Hydro, the Douglas Point station will supply 200,000 kilowatts of electricity. Estimated cost of the project is \$81.5 million. It is scheduled for testing next fall.

Plans call for Ontario Hydro to operate Douglas Point and to purchase it from AECL when proven suitable for operation in the system, at a price which will permit the production of energy at a cost comparable to a modern conventional thermal-electric station of similar capacity.

Construction progress at Douglas Point by year's end was as follows:

- Buildings complete.
- Building services 75 per cent complete.
 - Water intake complete.
 - 2,000 bundles of fuel on site.
- Turbine building condenser installed, turbine erection nearing completion.
- Electrical switchyard and transformers
 complete.
- Transmission line 31-mile stretch

linking Douglas Point with Hydro power system near Hanover — complete.

 Most other equipment — at site and in varying stages of installation.

But even as Douglas Point sped towards completion, Hydro customers had gained the distinction of being the first Canadians to utilize nuclear-generated electricity.

The Nuclear Power Demonstration station at Rolphton on the Ottawa River has operated successfully for a year and a half, providing operating and technical knowledge invaluable for future nuclear power stations, including the Douglas Point project.

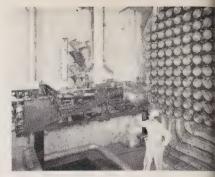
Pioneering efforts by AECL, Canadian General Electric Company and Ontario Hydro in building NPD, the only power station in the world employing a nuclear reactor fueled by natural uranium and moderated and cooled by heavy water, have stimulated a great deal of interest in other countries.

The United Kingdom Atomic Energy Authority is building a prototype steam generating, heavy water reactor and has recently signed co-operative agreements with AECL covering the development of heavy water reactors. Also, India has recently concluded an agreement with Canada to build a station similar to the Douglas Point Nuclear Power Station.

Speaking during the year about Hydro's participation in nuclear power development, the Commission's general manager J. M. Hambley had this to say:

"To date, NPD has performed with gratifying success. The extent to which nuclear resources will meet the future power requirements of Ontario is, of course, dependent upon factors of economics, efficiency and dependability which have yet to be learned or verified by operating experience."

In a year-end outline of plans for the next twelve months, Ontario Hydro Chairman W. Ross Strike said that consideration was being given to the feasibility of building a nuclear-electric plant of greater capacity than the Douglas Point development.









The 60-ton reactor at Douglas Point wi be suspended in concrete vault, righ between the two end rings shown Top to bottom above: (1) Fueling machin in operation at Nuclear Power Demon stration plant at Rolphton. (2) Dougla Point nuclear-electric station, schedule for testing next fall, will supply 200,00 kilowatts. (3) Giant cranes employed i unload Douglas Point equipment arrivin from England. (4) Control room at Dougla Point. Computers will perform certal specific control function



TRANSMISSION LINE CONSTRUCTION

The initial section of Canada's first extrahigh-voltage (EHV) transmission line, which will eventually feed output from the new hydro stations on the James Bay watershed to energy-hungry Southern Ontario, went into service in October. With its distinctive V-shaped aluminum or steel towers, the first link of the line extends 230 miles from a collector point at Pinard transformer and switching station, 60 miles north of Cochrane, to Hanmer, near Sudbury.

Construction deadline was timed to coincide with the in-service dates of generating units at the Otter Rapids and Little Long stations.

Initially, the first section of the line is operating at 230,000 volts, and its energy is being fed into the East System. When the first of two additional hydro-electric developments now underway on the Mattagami River is completed, in 1965, the operating voltage will be increased to 500,000 volts, providing over four times the carrying capacity of conventional transmission lines in the province.

The second half of the line to Toronto is scheduled for completion in the late summer of 1966, and the entire EHV line will then total 440 miles. Northern communities will receive power from the new plants through a connection near Sudbury. The line will also be used to supplement the output of Northern

Ontario generating stations, ensuring security of electrical service for the north.

Even as first power surged through the new line last fall, Hydro crews were at work erecting towers south of Sudbury for the second section. By year end, foundations were completed for 185 towers, 80 towers were erected, and stringing was completed between some 25 of them. It will take approximately 960 towers to bring the line as far south as Barrie. They will include both "V" and "Y" types as well as conventional.

Total cost of the EHV line and transformer stations is \$57,500,000. Undoubtedly this sum would have been considerably higher were it not for the extensive research and testing program undertaken in advance by Hydro. Benefits will accrue as the emphasis continues on EHV, which is by far the most efficient method of transmitting large blocks of power over long distances. The technique made it economically feasible to proceed with the present hydro-electric developments on the James Bay Watershed.

Including the first section of the EHV line, Ontario Hydro's transmission lines throughout the province totalled a record 18,495 circuit miles at the end of 1963. The Hydro network of rural distribution line had grown to 49,000 miles by year's end.









Last span is completed, right, on fir EHV transmission line section from Finard T.S. to Sudbury. Top to bottom above: (1) Pinard T.S., gathering point for power generated at Otter Rapids and Mattagami plants. (2) Researcher test instrument developed to pinpois sources of corona-induced radi interference. (3) Canadian designed by shaped aluminum towers were among structures employed on EHV lim (4) Wide-track muskeg vehicles we adapted to transport six-ton cable redover rough terrain withos conductor damage.



LOOKING AHEAD

Ontario Hydro commenced its 58th year on the 14th of May but its engineers and planners had little time to reflect on past accomplishments. Within the next 10 years they must design and build new power installations roughly approximating in generating capacity the present system, representing nearly six decades of growth.

Resources reached an all-time high of 7,756,000 kilowatts in December, 1963, to meet the demands of the farms, industries, and homes of the province.

But by the end of 1973, forecasters say, total resources of 14,500,000 kilowatts will be needed. The logistics of the electrical utility business make forecasting and planning a vital factor. New electrical demands must be met instantaneously. But production facilities — generating stations, transmission and distribution systems — cannot be built overnight. A new thermal-electric station, for example, must be committed five years in advance of the date estimates say it will be needed.

Ontario's power needs over the next decade will be met largely from thermal-electric generating plants, complemented by the development of remaining hydro-electric resources.

Of the 6,740,000 kilowatts of new capacity needed, 2,261,000 kilowatts or about one-third is already under construction. Beyond these present projects new power resources will likely be developed along the following lines, according to present estimates:

Nuclear-Electric

The next nuclear development after Douglas Point will likely be in the 1,000,000-kilowatt range, probably with two 450 or 500- megawatt units. A plant of this size would cost an estimated \$234 million. Hydro has offered to contribute \$100 million, representing the cost of a conventional thermal-electric generating station. Financing of the balance would be a matter for agreement between federal and provincial authorities.

The site, which must be approved by the Atomic Energy Control Board, has not yet been selected. Tentative in-service date is 1970.

Conventional Thermal-Electric

Site investigations are now underway at Courtright on the St. Clair River, six miles south of Sarnia, for a 1,000,000-kilowatt thermal power station. This plant is scheduled for operation in 1969. If this site proves suitable, ground will be broken for construction in the spring of 1965.

As part of long-term planning, Lake Ontario property has been acquired in recent years east and west of Toronto as the future site of two thermal developments to serve the central area of the province.

Now assuming greater importance as a source of electricity in Ontario, coal will continue to make an important contribution to the province's power resources in the future.

Even with the advent of economic nuclear power, coal-burning stations will play a vital role in supplying electricity during periods of peak demand. Nuclear plants, which must operate continuously with a minimum of stops and starts, will meet base loads, or 24-hour, round-the-clock demands.

Hydro-Electric

Undeveloped water power sites in the province are relatively small and spread over a wide area. These resources are limited to approximately 1,500,000 kilowatts of which about 200,000 kilowatts are in Northwestern Ontario and most of the remainder on the James Bay watershed. Tentative plans call for the development of some 300,000 kilowatts of hydro-electric power between 1967 and 1970.

The decade ahead will mark the end of an era for Ontario Hydro. If present forecasts prove correct, 1971 will see thermal-electric generating capacity — a combination of conventional and nuclear — predominate over hydro-electric for the first time.

Although water power will continue to make an important contribution to Ontario's electrical requirements for years to come, its part will be an increasingly small percentage of total resources.

By 1980, hydro-electric power is expected to represent only one-third of Ontario's electrical resources, with conventional thermal-electric and nuclear-electric generation supplying the balance.

WHY SALES PROMOTION?

With assets in the billions of dollars, more than 2.000,000 customers and power resources in excess of 7,500,000 kilowatts, the question sometimes arises — isn't Hydro big enough? Since the Hydro organization in Ontario is publicly-owned and without a profit motive, the argument goes, why not just provide enough power to meet requirements and let it go at that?

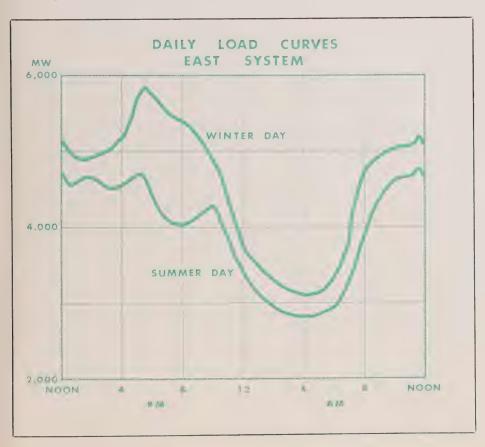
Sounds reasonable enough on the surface but let's dig a little deeper. It is necessary at the outset to reiterate Hydro's ultimate purpose, having established that profits are not a consideration. In the broadest context, the Commission was created to provide an abundant supply of electric power to the people of the province, either directly or through the associated municipal Hydro systems, at the lowest possible cost consistent with good service.

Under these terms, then, efficiency of operations is among the obligations implied. This must include such factors as construction methods, engineering techniques, office procedures, system planning and the most economic utilization of plant and equipment since they all bear directly on the cost of power.

It is in the realm of plant utilization and system planning where the economic necessity for a well-directed sales program becomes most apparent. For a basic understanding it is necessary to approach the matter from two directions.

First, and most obvious, is the load-factor consideration. This simply refers to the need for promoting those loads which yield the most revenue from energy sales in relation to the extra costs incurred in supplying that energy.

In other words, since Hydro is required to



provide facilities ranging from transmission lines and generating stations to billing machines and paper clips in order to supply the demand for electricity, it is only good economics to get as much use as possible from these assets. And as the graph suggests, there is a wide variation in the demand for power, both from hour to hour, and on a seasonal basis.

Improved load factor can be achieved by promoting those appliances and equipment which operate during these off-peak periods. Lower costs result from the greater use of capacity and a wider base over which fixed costs can be spread.

Next we must consider what has been called economies of scale. If there was no "autonomous" or "natural" load growth, then the Hydro system could remain static and no promotion would be necessary other than that required to improve load factor. In reality, of course, autonomous load growth is bound to take place where there is an expanding population and a growing economy.

This is where scale enters the picture. The technology of thermal-electric generation has been developing at a rapid pace in recent years, and it has been found that, in general, the larger the unit, the cheaper it can produce power. The size of a unit which a given system can afford to install is determined in great measure by the amount of its annual growth. The higher the rate of load growth, the larger the unit it can justify installing.

And there are indications that economies of scale apply even more dramatically to nuclear-electric facilities. It now appears that nuclear energy will be able to compete with conventional thermal power on those systems whose growth can justify large units.

Economies arising from rapid load growth are not confined to generation. Rapid growth is brought about in part by increasing saturation of appliances, increasing use per customer. This means more kilowatts per square mile — using existing poles and right of way. Larger sized transformer stations are also cheaper, just as are larger generating units.

The distribution costs of this load growth are very low.

These scale factors tend to favor a high rate of load growth quite apart from the load factor question.

It is not too much to suggest, then, that Hydro sales promotion, directed at improving load-factor as well as over-all growth, is a realistic policy designed to help minimize the cost of electricity in the immediate future. The policy will prove even more beneficial in the long term as the emphasis shifts from hydro-electric generation to conventional thermal-electric generation and, very shortly perhaps, to nuclear-electric power produced from uranium mined in Ontario.

ON THE LOAD BUILDING FRONT

Electric heating made a major breakthrough into the mass housing market during 1963 with the establishment of three electrically heated subdivisions in the province. The largest, Woodroffe on the Green, near Ottawa, will be part of an 1,800-home Gold Medallion community when completed. Albion Grove Village, in Etobicoke Township, will eventually contain 188 Medallion homes, and 150 such homes are planned for the first phase of White Oaks Village, in Clarkson. Belleville is the site of still another large all-electric subdivision, scheduled for launching in 1964.

At the end of 1963, some 7,000 electrically heated homes were occupied or under construction. The target for 1964 will be an additional 5,000 electrically heated homes, to bring the total to 12,000 by the end of the year.

To meet this objective, increased emphasis will be placed on developing new allies within the building industry. The conversion of existing homes to electric heating will also be stressed. Studies are already underway to determine the suitablility of a wide variety of electric heating systems for conversion installations. Conversions are expected to account for about 25 per cent of electrically heated homes in the province by the end of 1965

Supplementary electric heating received a substantial boost during 1963 with the establishment of more than 200 Electric Heat Information Centers across the province, in connection with the "Make Your Comfort Complete with Electric Heat" campaign. Opened in October, the campaign will be continued in the new year until February 29.

In the commercial and industrial fields, electric space heating received prime consideration during 1963. By the end of the year, a total of some 105,000 kilowatts had been installed in Ontario. This total includes some 2,000 electrically heated apartment

suites, 300 motels, 150 churches, and 110 schools occupied or under construction.

Another 50,000 kilowatts of new electric heating load from commercial and industrial installations is anticipated for 1964. Use of direct mail newsletters, started last year, to architects and consulting engineers will be continued in 1964. The series gives factual reports of electrical heating and of air-conditioning installations in commercial and institutional buildings throughout Ontario.

Electric water heating shared the load building limelight with space heating during 1963. An estimated 78,000 electric water heaters have been installed in Ontario homes since January 1, 1963. This includes the customers of the municipal utilities as well as those served directly by Ontario Hydro. The Commission plans to continue promotion of the high performance Cascade 40 water heater during 1964, including a province-wide campaign in March, April and May to coincide with a Canadian Electrical Association promotion. As well, Ontario Hydro will introduce to its customers a long-term, time-payment purchase plan as an alternative to the rental program now in effect,

Highlight of a successful commercial cooking and water heating program during 1963 was a three-day exhibition and demonstration for food service operations in Thorncliffe Market Place, Leaside, during October. The show was sponsored by five utilities and Ontario Hydro in conjunction with the Canadian Restaurant Association. On display were examples of commercial cooking equipment available from Ontario Hydro regional offices on a free trial basis to food service operators.

Since the current load building program started, some 47,000 kilowatts of commercial cooking load have been obtained. The 1964 objective is set at an additional 12,000 kilowatts

Other indications of success on the load

building front during 1963 include the following estimates: installation of 7,500 kilowatts of commercial electric water heating load; upgrading of 3,010 farms to 100 or 200ampere services; installation of 1,500 kilowatts for poultry brooding; promotion of "two temperature" electric refrigerators and freezers as the "Spring Hydro Special", resulting in 50 per cent increased dealer sales of these zero-zone units in Ontario over the same period the previous year. In addition, the past year witnessed the introduction of management and sales administration staff conferences as well as sales training sessions for field sales personnel; development of truck stickers used on 2,055 Ontario Hydro vehicles and by 155 municipal utilities; and the introduction of the "Treasure Chest" package promotion for use locally by utilities.

The load building program for 1964, developed in consultation with the Co-ordinating Committee on Sales and Advertising, composed of executive representatives of the Ontario Municipal Electric Association, the Association of Municipal Electrical Utilities, and Ontario Hydro, includes the following:

- Development of a dusk-to-dawn lighting program, effective January 1, 1964, for customers of Ontario Hydro who wish to rent lighting equipment for private property and road allowances;
- Establishment of a technical training program in ducted electric heating systems. This will be carried out in co-operation with the National Warm Air Heating Association.
- Introduction of large, colored outdoor posters to promote electric heating and water heating:
- Continuing emphasis on electric heating in advertising with liberal use of testimonialtype advertising in newspapers;
- Introduction of a new direct-mail publication to supplement other advertising and promotions in the farm field;
- Distribution of a new electric heating design book, prepared to assist heating engineers to make realistic estimates of operating costs in commercial buildings;
- Upgrading of 3,000 more farms to 100ampere services, and of 500 farms to 200ampere services:
- Promotion of electric hot water systems for poultry brooding, with an objective of 3,000 kilowatts to be connected in 1964.

Some highlights of 1963-64 on the load building front are depicted, opposite page. They include, left to right, top to bottom: Cascade 40 water heaters; dusk-to-dawn lighting; supplementary electric heating; all-electric subdivisions; electric poultry brooding; and Treasure Chest Special—a versatile promotion adaptable to local utility requirements.













SPOTLIGHT ON PROGRESS

Assistance from commerce and industry can make a higher education possible.

HYDRO SCHOLARSHIPS

Education is everybody's business and during the past two decades Canadians have become increasingly concerned with the importance of adequate facilities for advanced instruction.

The financial implications of university expansion programs to take care of the increasing student population are impressive and challenging. In 1950-51, operating expenditures of universities and colleges worked out to an average of some \$700 per full-time student. By 1960-61, this figure had increased to \$1,500 per student. And the Canadian Universities Foundation suggests that if the trend continues, per student costs by 1965-66 will be about \$2,300.

The two principal sources of income to cover these operating expenses are government grants and tuition fees, with government paying well over 50 per cent of the total cost per student.

But tuition fees, which now average about \$500 per student and can run well above that figure, plus books and equipment constitute less than 30 per cent of each student's personal costs annually while at university. Room and board, clothing, transportation and recreation must also be taken into consideration, so that the total bill per student is somewhere between \$1,200, and \$2,000 annually.

The difference between the cost of a higher education and a student's income from summer employment and part-time jobs, is often prohibitive, and many have come to depend on bursaries and scholarships from government, commerce and industry.

For this reason, Ontario Hydro initiated a scholarship program in 1952, which provides 12 annual scholarships to students in Ontario universities, colleges and technical institutes. The program is designed to assist and encourage engineering science students, and to promote enrolment in engineering courses related to the Commission's operations.

One of three University of Toronto students to win a Hydro scholarship this year, Geoffrey Stevens, expresses the value of scholarship programs this way:

"Students working their own way through college are often dependent on scholarships and bursaries to continue their education another year. The assistance available from companies such as Ontario Hydro may mean the difference between attending and not attending university.

"What impresses me most," he continues, "is that scholarships given by commerce and industry have no strings attached regarding future employment. Such scholarship programs reflect a true appreciation of the value of education to the future of Canada."

Now in his third year of engineering science, Mr. Stevens won the scholarship for his academic achievement during 1962-63.

Two other University of Toronto students also won Hydro scholarships. They were: E. O. Frind, in first year civil engineering; and O. A. Tekau, in third year civil engineering.

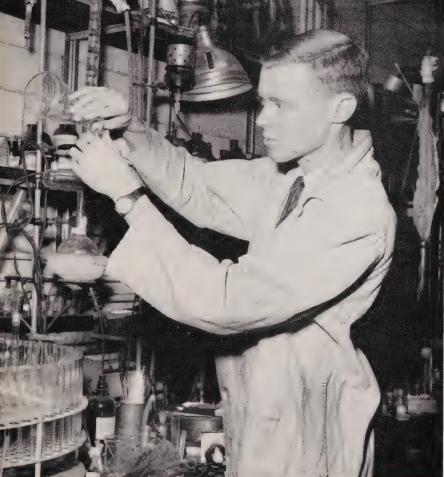
A bursary is awarded annually by Ontario Hydro to a student at the Ryerson Polytechnic Institute, Toronto. Winner this year was G. W. Jarrett, now in his third year of Mechanical Technology. Mr. Jarrett feels that scholarship programs such as Ontario Hydro's provide encouragement as well as financial help to students.

Awards were also presented to the following: at Queen's University — Claudio Michelutti, Sudbury, first year applied science; John E. Feick, Copper Cliff, second year chemical engineering; and Donald Western, third year electrical engineering; at the University of Western Ontario — Samuel Ola, Nigeria, first year electrical engineering; Robert McFale, Islington, second year civil engineering; and Juri Kortschinski, London, third year engineering; at the Lakehead College of Arts, Science and Technology, Port Arthur — Kenneth S. Guise, Port Arthur, engineering.

Scholarships were awarded to two students at the Royal Military College of Canada, Kingston, who tied for the annual award. The winners were Officer Cadets Joseph Filion, Montreal, third year electrical engineering; and William Scott, Calgary, third year electrical engineering.



Now a third-year mechanical technology student, G. W. Jarrett won a Hydro bursary for achievement during 1962-63 academic year at Ryerson Polytechnic Institute.

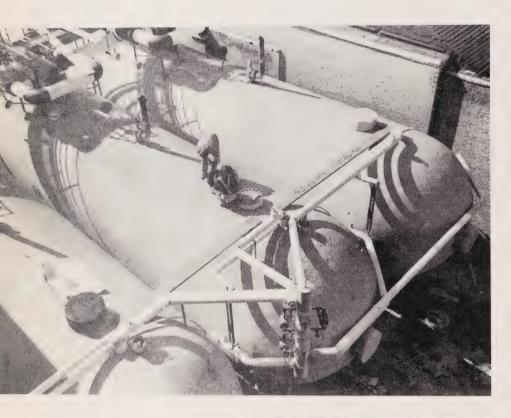




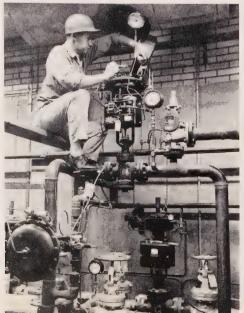
Chemistry experiment is carried out by Geoffrey Stevens, third year engineering science student at University of Toronto who won a 1962-63 Hydro scholarship.

Electricity + Water =

HEAT FOR A CITY HALL



Heating plan depends on the use of these giant steam accumulators, top, where steam is stored during off-peak periods and utilized as required. Each "bottle" is of oneinch steel, 80 feet long and 131/2 feet in diameter. Photo, right, shows complex control equipment being installed in plant.



Whatever our views may be with regard to the controversial architecture of Toronto's new City Hall, its heat supply system must be accorded full marks for ingenuity. Proving once again that initiative is the chief ingredient of success, the Toronto Hydro-Electric System found a way to help itself, to the advantage of the citizens it serves, and at no expense to the comfort of the building's occupants.

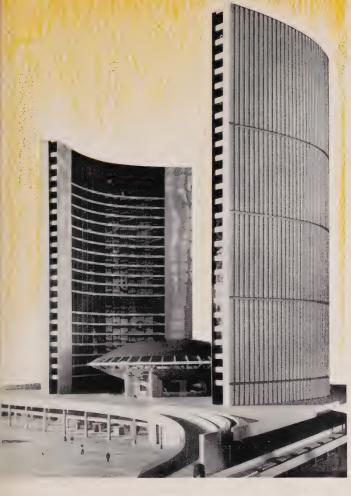
Faced with the unique situation where the peak load on its downtown system was occuring in the summer time, and with the problem about to be aggravated by the heavy air conditioning load represented by the new civic administration centre now under construction, the utility came up with the solution in the form of off-peak electric energy. Its customers will benefit from the economies of a better balanced supply pattern on the system and from the cleanliness of electric heating in an area where air pollution is a major problem.

When Toronto Hydro first approached civic authorities about energy requirements for City Hall, electric heating appeared out of the question since the project called for one central system to supply both the modernistic new building and the time-honored old City Hall, its annex and parking garage. It had to be steam if the central heating concept of the planners was to be retained since this was the method employed in the older buildings.

And so they developed a scheme whereby steam is generated utilizing off-peak power.

Electrically produced steam is not a new idea. It is used in some installations in the City of Winnipeg, by the Iron Ore Company of Canada, and in other specialized situations where off-peak power is available.

Because of the higher demand for electricity in the downtown area due to air conditioning, excess system capacity is available in the heating season which can be utilized to handle the City Hall complex heating load at little additional capital cost. Rates, of course, were a prime consideration and the whole scheme hinged on the use of energy at other than the utility's



Construction is well advanced on Toronto's striking new City Hall, shown in model, left, as it will appear upon completion. Lower photo shows electric steam generators being installed in Toronto Hydro plant which will heat the new City Hall and other nearby buildings.

beak periods. Steam accumulators nade this possible.

Built adjacent to the Terauley Street substation in downtown Toronto, where the necessary 13.8 kilovolt bower was available and steam mains of minimum length were feasible, the new plant permits the night-time 'loading up'' of two electric steam generators with a combined capacity of 36,000 kilowatts. This is equivalent to a maximum total rating of 120,000 bounds of evaporated water per hour.

The steam accumulators consist of hree horizontal tanks, each measuring 13½ feet in diameter and 80 feet in length, with one-inch steel walls rated at 200 pounds per square inch. Steam produced in the electric boilers injected into the accumulators during off-peak hours and drawn off for leating purposes during peak periods.

Though vast in dimension and complex from the engineering standpoint, he system is based on the same principle as a storage battery which can be charged when power is available

and utilized as required.

Already supplying steam to the new City Hall for construction purposes, he new plant is expected to take over the complex of old buildings in the very near future.



Schools across the province are joining the trend to this modern method of heating. The population explosion in Ontario during the past few years has brought the subject of school design into sharper focus than ever before.

To provide adequate classroom facilities for the influx of students, new schools, and additions to older ones, are being built in nearly every town and city throughout the province. But even when new construction catches up with the annual growth rate of student population, school boards will still be faced with what is rapidly becoming a very serious problem — premature obsolescence of school buildings.

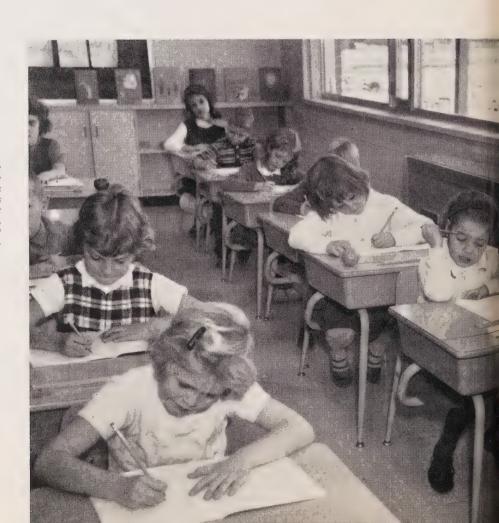
In search of a solution, William Davis, Ontario's Minister of Education, called school board members, educators, architects and builders to a twoday conference on school architecture early last fall. In connection with two of the topics discussed — long-range planning, and developments in building materials and research — electric heating received much favourable comment.

Not that electric heating is just off the drawing board. For several years in the United States, and for the past five years in Ontario, electric heating has been promoted extensively by numerous electrical utilities. When school opened last fall, nearly 70 schools and school additions were electrically heated.

But electric heating is undoubtedly the most revolutionary development in the heating field in recent years and however superior a new method may eventually prove, resistance to change is human nature. In those areas where the greatest success has been achieved in the realm of school heating, a real effort has been made to acquaint school authorities with the full story of electric heating long before a new school has reached the planning stage.

ELECTRIC HEATING GETS

This delightful study suggests there is no time for nonsense where the three R's are concerned. Oblivious to the camera, these youngsters are shown at ultra-modern all-electric Maple Grove Public School, Barrie. It was officially opened by Hydro Chairman W. Ross Strike.



Ince the local school authorities eceive approval to build, they are sually too rushed to entertain sugestions with regard to design changes.

This is born out by W. P. McCreath, nairman of the Ripley-Huron School oard, in the Georgian Bay Region. was only after a close study of eating methods extending over three ears that this board proceeded with n electrically heated public school, st spring. The school has seven assrooms and an auditorium-gym-

"We had been able to watch the ectric heating system in Kinloss ublic School, just six miles down ie road, ever since it was installed," Ir. McCreath says, "and we must ave visited close to a dozen other lectrically heated schools as well. /hen our turn came to build, we ever even considered any other type f heat."

At least one utility, Peterborough Utilities Commission, has found that an information brochure, containing detailed answers to almost any questions that could logically arise, is the ideal method of presenting the facts about electric heating.

Prepared at the utility's request by Ontario Hydro's East Central Region, the brochure contains estimates of capital and operating costs for electric heating in a variety of typical schools, details of the economics of a number actual installations throughout Ontario, and cost comparisons with other types of fuel. Copies of letters endorsing electric heating from school authorities experienced with this method of temperature control are also included.

The next step, as far as the Peterborough Utilities Commission is concerned, is to prepare estimates of installation and operating costs for

specific school designs, whenever the school board decides to build an electrically heated school.

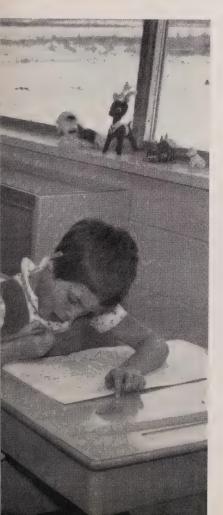
Enthusiasm has been described as a salesman's greatest asset and since this depends largely on product confidence, the people concerned with promoting the use of electricity for school heating should be an eager lot. They have a convincing case.

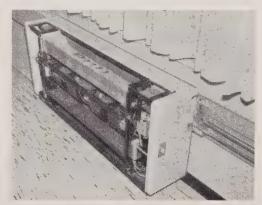
Capital Costs

Experience has shown that capital costs per classroom can be reduced as much as seven per cent with the installation of electric heating. Savings resulting from the elimination of the furnace room, fuel storage, and chimney more than make up for the cost of extra insulation which is recommended with the use of electric

A public school at Cobden, Ontario, is a case in point. Total cost of the building and the electric heating

GOOD REPORT CARD





by Joan Allen

Close-up, left, shows electric ventilator unit, with panel removed, at Lord Elgin Public School, Bowmanville. Youngsters, lower photo, are enjoying gym in all-electric Arthur Township school, near Listowel.



system were some \$1,950 less than for another school in Eastern Ontario which was conventionally heated and offered the same accommodation. A four-classroom school with a centre hall area composed of the teachers' room, janitor's room and washrooms, the Cobden school was architecturally designed for electric heating.

Operating Costs

Of equal importance to those considering electric heating for schools are the operating costs in comparison with those for fuel-fired systems. It is difficult to generalize since electrical rates and fuel costs vary from area to area and other factors must be taken into consideration. These include: cost of electricity for auxiliary motors with fuel burning systems; cost of staff to operate the heating plant; cost of maintenance; and cost of replacement parts.

In this respect it is interesting to note the conclusions of the University of Pennsylvania College of Engineering, as reported by the New York Times. After studying present and projected costs of school ownership and operation throughout the State, they found that in the long run, it was cheaper to heat schools with electricity than with coal, gas or oil. Operating costs for the fuel and electrical heating systems were found to be about equal but the combined owning and operating costs were less for electricity.

Superior control is another plus for electric heating. Room temperatures can be individually regulated, which

is a big advantage on weekends and evenings when activities may be confined to a few areas.

Lack of maintenance required with electric heating systems is also a strong selling point. It was this feature, in fact, which helped win over the Ripley-Huron school board, as mentioned earlier.

"Six years ago, our board converted an old three-room school from stoves to a hot-water heating system", Chairman McCreath says, "and we had to spend \$100 to \$200 a year for general maintenance from then on. That experience had a lot to do with our choice of electric heating in our new school."

Additional Classrooms

One of the most attractive features of electric heating is the ease with which new classrooms can be added as required. When an addition is built onto a school with a conventional fuelfired heating system, the furnace usually has to be replaced with a larger unit, existing piping or duct work has to be juggled, and heating controls must be supplemented. Aggravating the situation, classroom additions are usually located at the far end of the heating line.

None of these problems is encountered in heating school additions electrically, which means that construction costs for extra classroom accommodation can be far lower.

Even the tiny one-room rural school, with its time-honored but smoky and inefficient coal or wood burning stove, can be readily converted to electric

heating. Among several which made the change was the Rapid Valley Public School at Lansdowne, Ontario. Built in 1862, the one-room school was heated by a wood box stove until 1961.

Electric heat was chosen for the conversion because no furnace room was needed, equipment could be installed without construction changes, and installation costs were favorable. Total cost of the new system was approximately \$1,200, and operating costs ran about \$200 a year — somewhat less than it cost to feed and maintain the hungry wood stove.

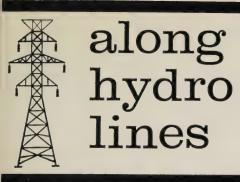
This old school has just recently been replaced with a handsome new eight room structure — all-electric, of course.

Another method being used to meet demands for additional school facilities is portable classrooms. Frequently moved to new locations, they are a natural application of electric heating. At last count, some 20 portable classrooms across the province were being electrically heated.

Ultimately, of course, any form of space heating must be judged by its ability to keep the occupants of the building comfortable. Where schools are concerned, all other considerations must be secondary to the provision of a healthy environment conducive to learning. Electric heating is in a class by itself in this regard. Safe, clean, noiseless and free of excessive dryness, this form of heating provides the student with little excuse for a poor report card.



Architecture is just one of the many attractive features of this new Separate School in Ancaster Township. It is among the many which have turned to electricity to meet total energy requirements.



oronto Hydro Holds Annual Civic Night



Pictured at Toronto Hydro's annual Civic Night dinner, left to right, are: John McMechan, vice-chairman, and Bertram Merson, chairman, Toronto Hydro; Mayor Philip Givens; Controllers Allan Lamport and Herbert Orliffe; Harry Hyde, general manager and chief engineer. The event helps improve liaison between Hydro and the various civic departments.

Toronto and Leaside council members and other municipal officials were guests of the Toronto Hydro-Electric Commissioners at their recent annual civic dinner, at which Commission Chairman, Bertram Merson was able to assure the gathering that no rate increases would be initiated in 1964. He revealed, further, that despite regular material and wage increases, Toronto Hydro had not resorted to a rate increase for over ten years and that average rates were still slightly below those of 1937.

In the light of this record, Mayor Philip Given's announcement that a new all-electric rate of 1.1 cents gross per kilowatt-hour was being introduced by Toronto Hydro drew a round of applause from the gathering. The rate is applicable to certain commercial customers and to residential customers with all-electric homes. The commercial power users affected are apartments, institutions and office buildings where electricity, billed through a single meter, represents the total energy requirements.

Mr. Merson, in presenting his report to the civic gathering, stated that Toronto Hydro had continued to increase load and revenue despite losses due to building demolition and industry migration to the suburbs.

"Our load increases are the result of our efforts in promotion, and much of this growth was derived from the heating of new buildings and the provision of auxiliary heating in commercial establishments and homes," he reported. He mentioned that water heating service had been extended to apartment houses and that con-

siderable success was being achieved in the development of this new load.

On the subject of distribution, he revealed that, in 1963, Toronto Hydro had spent \$2,000,000 on underground work, both actual and preparatory. He said it was planned to abolish all overhead lines on Bloor Street and Danforth Avenue, at an estimated cost of \$4,500,000, by 1969 or 1970.

Mr. Merson also went into some detail with regard to the heating of the new city hall complex and privately-owned buildings in the downtown section.

Leaside, which is served by Toronto Hydro, was represented by council members, including Mayor Beth Nealson who thanked Commissioners Merson and McMeachan for the co-operation her municipality has received from the System and for the opportunity of hearing about the latest developments on the Hydro scene.

Honor Accorded Galt Commissioner

A member of the Galt Public Utilities Commission for the past eight years, Norman Hancock, Q.C., was recently honored for his work with the Salvation Army. In presenting Mr. Hancock with a framed citation, Commissioner Wycliffe Booth, head of the Salvation Army in Canada and Bermuda, said: "Mr. Hancock has been chairman of the Advisory Board since its inception and the Salvation Army is proud to say thank you."

Brigadier A. F. Parkinson then unveiled a portrait of Mr. Hancock which will hang in the hall of Eventide Home.

Mr. Hancock is a brother of the late George Hancock who was one of the original Galt commissioners and served in that capacity for 26 years.

Ingersoll Veteran Retires



Many memorable events are bound to occur during 30 years as a Hydro commissioner and John A. Bowman, chairman of the Ingersoll PUC, will have no difficulty recalling them. Highlights of his long Hydro association were compiled in a scrap book presented to Mr. Bowman at his recent retirement.

Manager C. V. MacLachlan, left, is shown making the presentation at the Employees' Association Christmas party. Also in the group are former Ingersoll managers Edward Washburn, second from right, now manager of Burlington PUC; and Douglas Seath, manager of Stratford PUC.

Service Centre Ceremonies



This handsome new service centre was recently opened at Port Arthur. Cutting the ribbon, below, is Ontario Hydro Chairman W. Ross Strike with James Currie, chairman, Port Arthur PUC.



More than 300 "customer-owners" responded to an invitation by the Port Arthur Public Utilities Commission to participate in the ceremonies at the recent official opening of new service centre facilities. Uniformed female employees conducted guided tours of the building while other staff members stood by

to explain the various operations and equipment for which they were responsible.

Renovated and expanded at a cost of \$220,000, the three-storey reinforced concrete service centre building has been doubled in size while adjacent garage space has been tripled to accommodate 30 commission vehicles. Undertaken as a winter works project, the centre is occupied by a staff of 70 in the Hydro and telephone departments.

Among the functions carried out at the service centre are meter calibration and repair, warehousing, central purchasing, accounting and material control. High level lighting has been installed and all staff areas are electrically heated.

In his brief remarks at the ribbon-cutting ceremonies, Ontario Hydro Chairman W. Ross Strike said that the new centre was "a sign of the times" across Ontario. He said first-class Hydro facilities had sprung up across the province since the war, resulting in improved service and satisfied customers. Other speakers included Port Arthur PUC Chairman James Currie; Mayor Saul Lasking; commissioners Gordon Wilson and D. I. Nattress and E. A. Vigars, manager.

MUNICIPAL BRIEFS

Strathroy PUC is among those utilities with an active load-building program. In a year-end report, manager D. A. Rolston was able to list 41 domestic customers with all-electric homes; 18 industrial customers with total or partial electric heating; 35 electrically heated recreation rooms; and 266 Cascade-type water heater installations. Various projects representing some 250

kilowatts of additional load were underway. Strathroy PUC has 1,910 customers.

Among the steps taken by this aggressive utility to promote load is an annual banquet for employees. dealers and contractors, at which the various campaigns and objectives are explained in detail.

Milton Hydro employees recently enjoyed a special dinner "for services rendered above and beyond the call of duty". This was how manager O. H. Hadley described their efforts during a recent promotional campaign in which the target for water heater sales was exceeded by 20 units.

Niagara Falls Hydro is among those utilities introducing the single or "bulk" metering of all new apartment buildings.

Nepean Township, which recently voted to establish its own Hydro system, will require that both electrical distribution and telephone lines be placed underground in future subdivisions.

Hespeler Council recently passed a bylaw increasing the Hydro commission from three to five members.

Kapuskasing, Barrie and Trenton are among those municipalities which were enlarged, effective January 1, 1964, as the result of annexation. A 1,530-acre section of Vespra Township, with 536 residents, became part of Barrie; Trenton grew by the addition of 550 residents and 430 acres of Sidney and Murray Townships; while Kapuskasing annexed Brunetville, West Riverside and the Improvement District of Val Albert.

Brockville PUC reports 277 water heater installations during 1963, of which 65 were sold and 212 rented. Most were replacements.

Sandwich East PUC has come up with a novel way to say Merry Christmas and, at the same time, ensure that its customers are kept aware of its progress. All customers were sent a greeting card which included an invitation to join the kilowatt-hour guessing contest. They were given the number of kilowatt-hours supplied to the utility during December, 1962, and asked to estimate the number for 1963. Five prizes were offered, ranging from a Cascade water heater to a case of light bulbs.

Electric heating has been selected for an 18-storey, select residence apartment building now being erected in downtown Hamilton. Resistance heating through baseboard convector units will be employed in combination with radiant panels in the bathroom.

Owen Sound citizens who rent their homes will have their deposits returned by the PUC, providing their credit is good. The commission voted to return these deposits to all customers who have not had an arrears balance in the past two years. More than 2,000 deposits will be refunded in this goodwill gesture.

An all-electric summer home development has been commenced at Sturgeon Lake, near Lindsay. To date, 12 cottages have been built in this 150-lot development, which includes many features of a permanent year-round community. The plan is said to appeal particularly to retired people who plan to use their

cottages from April to November while spending the remaining months in the south. Prices will range from about \$5,000 to \$18,000.

In a recent report to council, Bowmanville PUC Chairman Lawrence Mason explained the need for load building in this way:

"If there is a great variation in the peak load and the average load we are the loser. Therefore it is the obligation of the commission along with other municipalities to promote the use of power so that the constant and average use will be as close as possible to the peak load. This is called the "load factor". In Bowmanville, at present, thanks to a variety of circumstances, our load factor is reasonably satisfactory.

"For these reasons we stress the value and advantage of electric home heating, water heaters and the use of other appliances which result in a steady and constant use of electricity. This is to the benefit of the consumer in the stabilization of rates."

Ontario Hydro has announced that the recently amalgamated Eastern and East Central Regions will now be known as the Eastern Region. Headquarters are in Belleville. The new Region stretches from Port Hope in the west, along the shoreline of Lake Ontario and the St. Lawrence River to the Quebec boundary, and north to a point just south of Mattawa. The triangle has an area of approximately 21,000 square miles.

Ontario municipalities have been given until August 1 to apply for provincial grants toward the cost of special projects planned as part of the 1967 Canadian Centennial celebrations. Provincial Government has announced the rules under which a grant of \$1 per capita will be paid for eligible projects. The municipalities must contribute an equal sum.

Personalities in the news include *Fred McLeod*, who has retired after 39 years of almost continuous service to the people of Ailsa Craig. He was a Hydro commissioner from 1951 to the end of 1963, reeve from 1947 to 1949, and secretary from 1924 to 1947. *William Smart*, superintendent of Tottenham P.U.C., has retired after 34 years Hydro service. □

bert Butter Dies At Owen Sound



Members of the electrical industry across the province were shocked to learn of the sudden and untimely death of Robert Butter, 63, manager of the Owen Sound Public Utilities Commission for the past 17 years. He suffered a fatal heart attack New Year's Eve.

Born at Carluke, near Mount Hope, Mr. Butter graduated

from the University of Toronto in electrical engineering. He joined Hamilton Hydro in 1922 and remained with that utility until 1946 when he moved to Owen Sound.

Mr. Butter was president of the Association of Municipal Electrical Utilities in 1950 and he served as secretary of District 2, Ontario Municipal Electric Association for 14 years. He was a past-president of the Young Men's Christian Association of Owen Sound, and a member of the Masonic Order, Kiwanis Club and North Grey Regional Conservation Authority.

Among the survivors are his wife, the former Margaret Laurene Berry, and two daughters.

V. A. McKillop Retires





The retirement of V. A. McKillop (left), general manager of the London PUC, and the appointment of A. L. Furanna (right), acting general manager, was recently announced. The changeover will take place at the end of March.

This will end a 40 year career with the London PUC for Mr. McKillop, who served as president of the Association of Municipal Electrical Utilities in 1942. Before his appointment as general manager in 1952, he served as assistant engineer, engineer, assistant general manager and secretary of the commission.

Mr. McKillop is a past president of the Engineering Institute of Canada and after World War II, assisted the vocational guidance director of the London Board of Education in advising students and veterans who showed interest in an engineering career.

Past chairman of the American Waterworks Association, Canadian section, Mr. McKillop was president of the London Kiwanis Club in 1953. He graduated in electrical engineering from the University of Toronto in 1924.

Mr. Furanna joined the PUC in 1935 and has held the positions of chief engineer, and assistant general manager before this appointment.

LETTERS to the editor

Dear Sir:

The report on the OMEA Sarnia meeting on page 19 of the November issue mentions a debate on whether utilities should own service entrance boxes. Your readers may be interested in the policy we have urged in the Pacific Northwest and reasons therefore.

Our decision to put the finger on subsidizing 200 and 300 ampere entrance boxes was somewhat theoretical at first. A Eugene, Oregon, load forecast discussed the low electrical consumption of old homes and their poor growth rates in contrast to the high use of new homes coupled with rapid growth. We surmised that the old

home was a bottleneck of the utility and of the community.

Looking into the old home we found inadequate wiring was bottleneck #2. The small entrance box was bottleneck #3. The price tag of a 200 ampere box was bottleneck# 4.

We proceeded to publicize this quadruple bottleneck and started to urge utilities to subsidize or give away 200 ampere boxes as the way to smash all four bottlenecks.

About 20 utilities now either give the customer \$100 toward a 200 or 300 ampere entrance box or buy the box and main breakers wholesale and then give it away: (1) only in the case of existing homes, and (2) if at least two major appliances are added. Some systems require conversion to electric heat. More and more public and cooperative systems are adopting a 200 ampere entrance box subsidy program. All reports are favorable although we did black ball one 200 amp box, no longer manufactured, for melting down under continuous load.

I recommend that you set 200 ampere standards for continuous load.

I recommend a subsidy or hard selling of 200 and 300 ampere boxes as a salutary method for modernizing our electric slums (homes under 200 amperes).

As to the rate of installation, I'd say about 2% of the old homes per year convert to 200 amperes. Thus the capital requirements are not severe, and, in any event, the new revenue makes the program pay for itself

Gus Norwood, Executive Secretary Northwest Public Power Association

District 4 OMEA Elects New President

Meeting for the first time in 1964, the executive of District 4, Ontario Municipal Electric Association, recently elected William J. Fisher, chairman of New Toronto Public Utilities Commission, president. He replaces Gordon Leaver who was defeated in his bid for re-election to the Oakville Public Utilities Commission in the December municipal elections.

E. D. Steer, of the Ajax Hydro-Electric Commission was appointed to complete the District 4 executive.

National Electric Week

The eighth annual National Electrical Week will be held February 9-15 this year, focusing attention on the contribution made by electricity to both the Canadian way of life and to the economic strength of our country.

The theme, "Electricity Powers Progress", a continuation from the previous year, will be adopted in both the United States and Canada.

National Electrical Day, February 11, will be observed by the industry in the cradle of confederation, Charlottetown, P.E.I., in honor of that province's 100th anniversary. J. W. Kerr, past-president of the Canadian Electrical Manufacturers' Association will make the keynote speech. In Toronto, Mrs. A. F. W. Plumptre, of the Consumers' Association of Canada will address the Electric Club on February 12. Also on that date, the Electric Service League of Ontario

is inviting electrical industry representatives to attend a meeting to discuss the Medallion All-Electric Heating Program.

Dressed Up For Christmas



With the growing trend toward the use of outside lights for Christmas decorations, municipal utilities across the province are setting an example to their communities at their own headquarters. The tastefully bedecked building shown here is the office of the Niagara Falls Hydro-Electric Commission.

Primary Energy November-December

Primary energy provided by Ontario Hydro in November totalled 3.29 billion kilowatt-hours, an increase of 5.1 per cent over the same month a year ago. In December the figure was 3.58 billion kilowatt-hours, an increase of 8.8 per cent over the same month last year.

For the 12 months of 1963, the total is 37.6 billion kilowatt-hours, up 5.2 per cent over the total for 1962.

Adjusted for seasonal influences, primary energy demand in November was 3.19 billion kilowatt-hours, 0.9 per cent more than the previous month. In December it was 3.32 billion kilowatt-hours, 4.1 per cent more than November.

The seasonally adjusted total for November represents 38.34 billion kilowatt-hours at annual rates. This is 275.6 per cent of the energy demand in 1949. Allowing for seasonal influences, the December energy demand, projected at annual rates would result in a yearly output of 39.85 billion kilowatt-hours. This is 286.5 per cent of the energy demand in 1949.

Hydro Awards Contract

A contract valued at approximately \$10.5 million for two 300,000-kilowatt steam turbo-generators was awarded recently by Ontario Hydro to James Howden and Parsons of Canada Limited, Scarborough Township — the lowest of four tenders received.

OFF THE WIRES

It is hard to realize that the atomic age is old enough so that some of the earlier developments are reaching retirement. At Oak Ridge, Tennessee, the world's oldest operating nuclear reactor was put to rest after 20 years, 11 hours and 13 minutes of faithful service. The existence of this graphite reactor had been a closely guarded secret for years.

It looked as though Sudbury Hydro had discovered the ultimate answer to the load building problem until an electrical inspector got nosing about. In a routine inspection at St. Charles College, the inspector found that the total electrical supply to the building, which had been extensively rewired some years ago, was passing through one meter while an older instrument was still recording part of the load.

How two meters came to be operating has never been fully explained but Sudbury Hydro was glad to refund more than \$2,800 when the mistake was discovered. It covered duplicate billing from about February, 1955, with interest.

Enthusiasm is a characteristic of the North, they say, and its only natural that they should get carried away, on occasion.

"Fleet Logic" — a brief but informative transport and work equipment bulletin issued from the A. W. Manby Service Centre contains a lot of common sense items that should be of assistance to vehicle operators. The latest issue included a tidbit on setting parking brakes—something, we'll wager, most of us didn't know. When parking brakes on most modern cars and light trucks are set, the item suggests, they may appear to be firmly engaged but the vehicle actually remains free to roll backwards. It seems that when only the parking brake is set, the brake shoes and drums are not fully engaged, permitting the vehicle to move backward, but not forward. If the hydraulic (foot) brake is applied when the parking brake is set, the vehicle will be

unable to move in either direction and Fleet Logic suggests every driver would be wise to adopt this practice.

"Consumer's Gas Tied, Electric Heat Wins" was the way Cobourg Sentinel-Star headlined a recent report of a hockey game played in the local arena between a gas company team and the Kinsmen Juveniles. But most praise was reserved for the newly-installed electric infra-red heating system which, according to the newspaper, "was a smash hit in its unveiling." Versatility and economy of this type of heating is suggested by arena plans which contemplate a charge of three dollars per hour for organizations wishing to have heat throughout the building, or a lesser amount when only one or two sections are to be heated.

All-electric voting is among the measures advocated by Marcel Lambert, former Speaker of the House of Commons, to speed up business. He pointed out that a vote in the French National Assembly, which has twice the number of deputies as Canada, takes exactly two minutes. In the Canadian House, each vote takes about 25 minutes.

In explaining the discrepancy, Mr. Lambert revealed that French deputies have an electric console on their desks and when voting, press one of three buttons—"for", "against" or "abstain". The vote is transmitted to a computer which tallies and flashes the result on a screen.

Electricity is doing its bit to standardize living habits around the world. Latest evidence comes from a Japanese survey which indicates that nearly every home in that country now has electricity. The survey suggests that the "pop-up" toaster is gaining rapidly in popularity as toast replaces rice at the breakfast table. Rice still plays a big part in the Japanese diet, however, and automatic electric rice cookers are used extensively in preparing the noon and evening meal. Television gets the nod as

the most popular electrical item, while two-thirds of the homes in urban areas have washing machines and 40 per cent have refrigerators. The Japanese probably outdo Canadians in the sewing machine field with 80 per cent of urban homes in that country being so equipped.

Electricity may be hard to define but it is just as substantial as eggs, shirts or automobiles when theft is involved. A Cornwall, Ontario, man was recently given a one year suspended sentence and required to make restitution to the local utility when he pleaded guilty to tampering with a meter. The theft was uncovered with the use of a check meter mounted on a nearby pole.

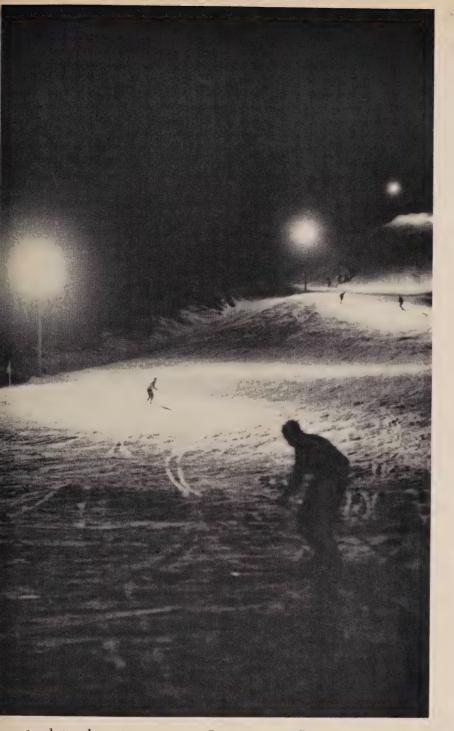
A chance find at the University of California of an unusual seismographic record has recently been made, recalling how electricity was employed to let the people of Ottawa know when the First World War ended.

In those days people anxiously awaiting word of the armistice had no broadcasting stations to flash the news and they were told to keep an electric light burning. When it went out, this would signal that the war was over. The power in the Canadian capital was shut off for 15 seconds on Monday, November 11, 1918, at 10 minutes 48 seconds after 3 a.m.

Doctor Otto Klotz, then Dominion astronomer, was able to record the exact time the power was turned off because his seismograph at the Dominion Observatory was run by electricity. When the power was cut off, the period was recorded by a blank in the graph. Copies of the graph were sent to various scientific institutions and one turned up at the University of California in a recent examination of old files. It was sent back to Ottawa.

It all seems rather primitive today, but it is interesting to note how electricity has remained in the forefront of the tremendous progress which has been achieved in the field of communications.





HYDRO NEWS

FEBRUARY, 1964



ng is big business in Ontario. See page one.



VAIRARALL PERNA PERIODICALS DEPT PERIODICALS DE TORONTO TRO 1 CINOROT



The man behind the frosty breath is John Miller Hope who operates one of the few remaining one-man saw-mills in Eastern Ontario. His way of doing business is fast disappearing and we thought our readers would enjoy a sojourn into the pioneering era while the opportunity exists. Please see page 16.



This is our way of killing two birds with one stone. Photo shows work proceeding on restoration of Sir Adam Beck statue under a plastic canopy for winter protection. Additional photos of Sir Adam's come-back are on page six while a story on winter construction commences on page seven.

FEBRUARY, 1964

ONTARIO HYDRO NEWS

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THE COVER

Skiing has become a multi-million dollar business in Ontario and, as our cover photo suggests, electricity has been in the forefront of the boom. Supplied, courtesy of the Ontario Department of Travel and Publicity, the photo depicts night skiing at Limberlost in the Muskoka area. Our article commencing on the opposite page reviews some of the recent developments on the Ontario ski scene and suggests the extent of the sport's popularity.

HYDRO NEWS, VOL. 51, NO. 2

Editor: Don G. Wright.

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Whether you swish down the hill with the grace of a gazelle or make the descent by the seat of your pants, you have one thing in common — you're a ski buff. To the remainder, skiing is an activity regarded with awe or downright apprehension. Nevertheless, skiing has evolved into one of Ontario's leading winter sports and a multimillion dollar business.

Last year, over 8,000 adults were registered with the Canadian Amateur Ski Association in 68 clubs across the province. But this is a miserly yard-stick with which to measure the sport's true popularity since it does not include children or countless more thou-

sands who take to the slopes on a more casual basis. Government estimates suggest that 200,000 might be a more realistic figure.

Why the sudden interest in skiing in Ontario? There are several explanations. One veteran of the slopes believes that television coverage of international events, such as Ann Heggteveit winning Canada's first gold medal for skiing at the 1960 Winter Olympics, has had an important influence. Certainly, the enthusiasm of European immigrants, accustomed to disporting themselves in the snowy Alps, has been infectious.

Then, too, the sport itself has

changed. Gone are the days when most of the time was spent in a struggle to gain altitude. Much of the drudgery has been removed with the development of chair lifts, T-Bars, Poma-Lifts and other ingenious devices designed to whisk the skier, whatever his avoirdupois or condition, to the top of the steepest hill in a matter of minutes.

Even the snow itself can be manufactured. More and more centres, inadequately endowed with the natural product, are turning to snow making equipment for their requirements. The procedure is simple.

Large air compressors and pumps force air and water through tubing,



id out around the ski area, and spew into the freezing air through gun-like ozzles attached to the pipes by hoses. hese installations are capable of makg from two to four inches of snower hour and, for skiing, it's every bit good as the natural stuff.

The ski centre at Don Mills, in the eart of Metropolitan Toronto, is a good example of the snow maker's art. If the surrounded by bare hills, the entre is virtually unaffected by the egaries of the weather and attracts iers from all parts of Metro all sean long. In Toronto, the Department Parks and Recreation is taking a cose look at the technique with a view

to making skiing an important part of its program.

As skiing interest soars, improved facilities and on-the-site accommodation are being provided — something the province has badly lacked.

Speaking recently at the opening of a \$600,000 ski resort in the Beaver Valley, James Auld, Minister of Travel and Publicity, revealed that the number of ski areas in Ontario now exceeds that of Michigan, leader in the United States, by 110 to 85.

"This is exactly the type of undertaking we need", said Mr. Auld, of the Beaver Valley resort. "It not only will attract skiers into the province but will make a lot of Ontario skiers think twice before taking off for a skiing holiday elsewhere."

And the boom continues. In addition to further extensive work being carried out at the Talisman resort, recently opened by Mr. Auld, a Huntsville centre representing a similar large investment is presently under way. Too, the Ontario Government is exploring the Killarney Recreation Reserve, 40 miles south of Sudbury on the shores of Georgian Bay, as a possible ski centre. Silver Peaks, as the area is known, has a vertical drop of approximately 1,050 feet and an average snowfall of 130 inches a year.

(continued on next page)





Skiers, opposite page, take time out for lunch at Mansfield, near Alliston. Bottom photo shows artificial snowmaking at Don Valley ski centre. Ski school, far left, is at Owen Sound while slalom course. left, is at Collingwood.





ROPE TOW - Don Valley.



T-BAR — Gravenhurst.



CHAIR LIFT - Fort William.

TALKING ABOUT TOWS

Old-timers and non-participants will be interested in the various devices now in use to transport skiers from the lower regions to the heights above. Early pioneers may even recall when this was accomplished by muscle power. Rope Tows. Fading fast in popularity, the rope tow was the first method devised to make skiing a one-way sport — downhill. Still in use, particularly on nursery slopes, this tow is essentially a travelling rope which the skier is required to grasp until arriving at his destination. Being cleaner and lighter, synthetic ropes have added a degree of refinement to this rather primitive device.

T-Bars and Poma Lifts. These are now the most popular on lengthy hills. Both propel the skier upwards by means of an attachment to

an overhead travelling cable supported by towers. Some lifts of this type operate on three-phase, 600-volt motors capable of transporting 1,200 people an hour up a 3,000-foot run. Such an installation would cost in the neighbourhood of \$40,000.

Chair Lifts. Tops in sophistication, the chair lift is still rather rare — there being only six in the province. Requiring somewhat less power than the T-Bar, where the passengers' feet remain on the ground, chair lifts tend to be more expensive over-all. Some enterprising chair lift owners are also using them to carry summer tourists to the hilltops for views of the surrounding countryside.

Plagued by serious accidents in the early days of their development, ski tows now

must meet rigid safety standards and they come equipped with such safety devices as electric brakes, safety gates and emergency stopping controls.

Without any close mechanical relatives, ski tows might be considered to belong in the same family as the common elevator. For this reason, the Ontario Department of Labor Elevator Inspection Branch has been charged with safety inspection, keeping a close check on more than 200 ski tow installations in the province. It is up to the owner to maintain his equipment in safe working condition and he is required to enter any alterations in a log book, which is subject to inspection.

Combined, these precautions virtually assure a safe ascent. Coming down is the rub. $\hfill\Box$

THE SKI IS THE LIMIT

Considered a "have-not" province at one time because of a lack of mountains, Ontario nevertheless offers slopes sufficient to challenge all but the most demanding. Blue Mountain, near Collingwood, generally considered the cradle of big-time skiing development in the province, has an elevation of 1,500 feet. With a somewhat lesser drop, nearby Beaver Valley is blossoming out as the St. Moritz of Ontario.

Electricity has gone along on the trek to the snow-covered hills.

Smoky wood stoves may add atmosphere but after a hard day in the wide-open spaces, few skiers object to having instant comfort at their fingertips in electrically heated chalets and

dormitories. Hardy types can return for an after-supper turn, thanks to the growing use of floodlighting, while husky, silent electric motors are taking many of the headaches out of the tow operator's task.

Skiing accommodation is becoming much more sophisticated and electricity has contributed much to the improvement. Well-appointed kitchens are a feature of most skiing establishments and some flaunt indoor, heated swimming pools and sauna baths. One Owen Sound resort has plans to install an outdoor heated swimming pool after the fashion of Banff's famous spa.

Hydro's Markdale Area is one section where the skiing influence on power consumption has been parti-

cularly noticeable. The peak load here, which had previously occurred in the summer due to a high concentration of resorts and cottages, now takes place in the winter. Three ski centres in this Beaver Valley area require some 325 kilowatts for tow use alone.

Obviously, skiing has become a big business in Ontario. And the economic ripples spread well beyond the actual on-site developments. Transportation enters the picture and considering that it costs about \$150 to properly outfit the novice, the full impact on the economy can be appreciated.

Tracing the ripple effect further, there are the people who sell insurance and manufacture liniment, splints, bandages . . . but perhaps we have gone far enough.

GAUGING

THE

Regular appliance surveys help keep sales efforts on target.

MARKET

ne-fifth of the householders in Onio can dry their hair, if they have y — or their wigs — in a hurry. ney own hair dryers.

And one-third of the families with television set can regularly serve into TV dinners during their favorite ograms. That's because one out of ree Ontario homes with television to has either a freezer or a two-door rigerator-freezer combination.

These statistics are included in a port entitled "Hydro Appliance Sury — 1962" produced by Ontario ordro's Sales Division and distributed municipal electrical utilities in Onio.

Survey results are among the data quired by the municipal utilities for most efficient planning of future tem requirements. The second of eries, the survey was carried out to ermine reliable provincial saturation ares for a wide range of electrical plances and equipment. Comparison the November, 1962, results with see from the survey conducted two are earlier reveal general saturation and and load building potentials oss the province.

Copies of the reports have also been de available to electric appliance equipment manufacturers, distribres, dealers, and contractors as a nable source of market information. The report contains interesting sidets on the household characteristics way of life of the people of Ono, and clearly indicates that the rate acceptance for electrical appliances tinues to grow among Ontario seholders.

total of 97.7 per cent of Ontario seholds have an electric refrigera-



Computers were utilized extensively in Hydro's second appliance survey. Checking progress are L. S. Cockerham, survey programmer, centre, and L. V. Skof, manager, Marketing Research. Computer operator G. D. Reynolds is shown seated at panel board.

tor, the highest saturation shown, but only 2.2 per cent own an electric dishwasher, the lowest saturation among the appliances included in the survey.

Home freezer ownership ranges from 14.9 per cent in cities and towns to 49.6 per cent on farms.

Steadily increasing preference for electric cooking among Ontario homemakers is clearly indicated by the fact that 79.3 per cent use electric ranges, 70.2 per cent have electric kettles, 52.5 per cent own electric frying pans and 11.5 per cent have deep-fryers—all representing an increase over the 1960 saturation levels.

The saturation of electric dryers increased to 25.6 per cent in 1962 from 17.3 per cent in 1960. The saturation of electric washing machines, however, declined somewhat from 90.0 per cent in 1960 to 88.4 per cent in

1962. For the most part this decrease is the result of a recent trend to apartment living and coin-operated laundries, where one washing machine serves many families.

In the most recent survey, Hydro's Marketing Research Department sent questionnaires to some 120,000 householders selected by the process of random sampling from across the province. A high percentage — over 66 per cent — of the questionnaires were completed and returned.

Similar appliance surveys will be conducted every two years to keep abreast of trends in the marketing and use of appliances in Ontario. In preparation for the third survey in the series, utilities will be contacted, who have participated in past surveys. Other utilities interested in taking part should contact their Regional Office.





SIR ADAM MAKES A COMEBACK

Down but never out — Sir Adam Beck is back at his old stand on the University Avenue boulevard in downtown Toronto from where he has gazed northward for almost 30 years.

Removed for subway construction, the six ton, 13½-foot statue of the "Father of Hydro" has been restored at the original site on a new 165-ton base of grey Vermont marble. A massive concrete foundation had formerly been employed. Sir Adam was the first chairman of Ontario Hydro.

Originally erected by the City of Toronto and the Toronto Hydro-Electric Commission, Sir Adam's likeness was unveiled September 1, 1934. He had been depicted in bronze, in a pensive mood, by the late sculptor Emanuel Hahn.

Noted sculptress Elizabeth Wyn Wood, wife of the late Mr. Hahn, acted as consultant to the Metro Parks Department for the restoration project.



WORKING IN WINTER

by Norman Panzica

The cold weather may be as bitter as ver, but in another important sense, vinter isn't nearly as tough as it used to be. Traditionally, it has been the eason of unemployment — but the onviction is growing that only tradition has kept it that way. New contruction methods, new equipment, and variety of government incentives are combining to fill in those valleys in mployment graphs that traced the vinter slump each year.

The many-pronged assault on the problem appears to be paying off: arefully-drawn estimates of the fedral government indicate that Februry, 1964, was the best in seven years. The estimated 510,000 out of work was about 35,000 lower than Februry, 1963 — and fully 209,000 less han the post-war unemployment eak of 1961.

The consensus seems to be that the icture is brighter, but still not dazzling. A change in human attitudes is seen as the primary solution, and varius incentive programs are helping to ring this about.

Winter Works, a three-government roject in effect for several years, has ndoubtedly stimulated winter employment. Under its terms, 75 per cent of n-site labor costs for work done in specified period may be recouped y municipalities. The province puts up 5 per cent of the cost. In those areas esignated as depressed, the federal overnment gives 60 per cent instead f 50, and the provincial share goes p to 30 per cent.

Much of the capital work undertaken by municipal electrical utilities can qualify for Winter Works assistance, including buildings, street lighting, underground, and virtually any capital program.

"We still find local utilities who are surprised to learn that such work as street lighting qualifies," says A. E. Hazell, a municipal accounting adviser in the Ontario department of municipal affairs. But he adds: "One factor limiting local utility use of this program is that relatively little of their work can be done by unskilled labor."

To qualify, labor must be hired through National Employment Service referrals, either by the utility or its contractor; or it must consist of people who would have been laid off but for the project named in the application.

Winter Works is in no sense a subsidy. It is reimbursement for wages paid to men who otherwise wouldn't be working. Indeed, the program makes no grant for non-emergency overtime as it's better, from the government's point of view, to hire more men.

This season, Winter Works runs from November 1 to April 30, and no extension seems likely. By the end of December, 951 applications had been received from Ontario municipalities for a total eligible direct labor cost of \$16,112,000. Total value of all projects was about \$97 million.

"Do It Now" is the federal government's vigorous and, by now, familiar



Sub-zero outside temperatures don't bother these construction men who carry on in their shirt sleeves within heated temporary enclosure.

A combined attack

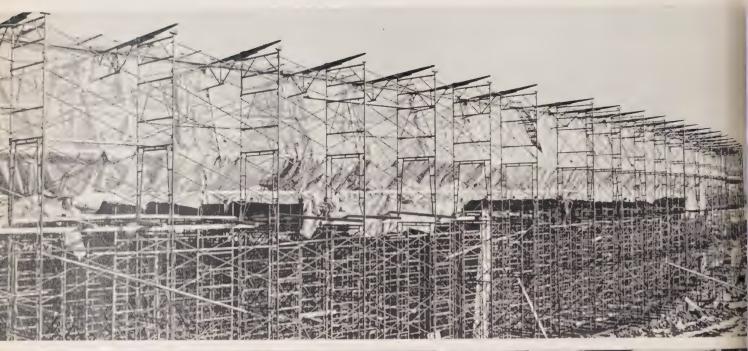


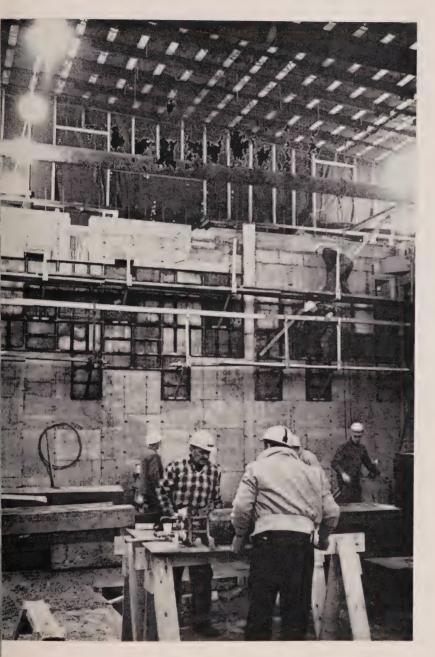


Photo courtesy Robert Soper Ltd.



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naving its effect on the cold spectre of winter unemployment



Vast expanse of plastic sheeting, top photo, opposite page, speeds winter construction of Spadina Expressway overpass at Highway 401 in Metro Toronto. Photo, far left, shows construction site completely enclosed within air-supported "bubble" tent. Fireplace takes shape, left, in Don Mills subdivision, within heated plastic enclosure on wood frame. Winter work proceeds smoothly at Toronto-Dufferin Transformer Station, above, where excavation is covered with canvas roof.

promotional campaign to convince people that waiting for Spring is unfashionable and unnecessary.

"There's been notable improvement in winter construction employment" says R. D. Ash, an employee relations officer of the National Employment Service, "and we feel sure that our recently adopted program to stimulate winter buying will extend this benefit to other fields."

He was referring to a lesser-known aspect of "Do It Now" aimed at encouraging people to buy things as well as build things during the winter months. More buying means more work for jobbers, manufacturers and shippers. NES doesn't want people to spend more, necessarily, but they'd like to see purchases spread out over all 12 months, giving January and February a larger share. Manufacturers are being urged to renovate in winter, schedule winter vacations where possible, and produce as much as they can stock-pile for better-weather sell-

And then there's the \$500 bonus to buyers of winter-built homes. Introduced last year, this offer had attracted more than 29,000 applications from across Canada by the end of Decem-

Why so much emphasis on construction? L.F.D. Coulson, regional employment officer, NES, estimates that about one-third of the unemployed work at construction. It is also true, he believes, that for each man working in construction, another is employed supplying the industry. He feels that the various government-sponsored retraining programs will aid considerably in reducing the big pool of unskilled labor which is at the heart of the unemployment problem.

Winter construction raises a host of questions — primarily, what does it cost?

"It's cheaper than shutting down," says V. A. Harrison, manager of planning in Ontario Hydro's Construction Division, "and it makes it possible to retain at least the nucleus of an experienced team. Scheduling of operations is everything; the idea is to get some kind of heatable shell up before the cold hits. The building's own structure is, obviously, far better in this regard than any temporary housing."

The Canadian Construction Association recently surveyed 106 building contracts valued at about \$50 million. Its conclusion: winter work adds about one per cent to the cost. Projects studied by the CCA averaged more than \$470,000 and it is reasonable to suppose that a somewhat higher percentage of additional cost would apply in the field of house construction.

Ingenuity in techniques is playing a

part in reducing the cost of winter construction. A good example is the low-cost procedure recently employed by Ontario Hydro and presently in use at a transformer station being built in Toronto. It involves "roofing" an excavation with steel and wood supports covered by strong tarpaulins. With the use of portable heaters, workmen can move about without gloves or heavy coats. Extra heat is applied in areas where concrete is being poured.

Previously jobs were covered with pole framing on which tarpaulins were nailed. The new method retains heat better, is less bulky, and can hold heavier loads of snow. Materials are re-usable.

One factor affecting the cost of winter concreting, an important cost

element on most jobs, was cited recently by C.R. Crocker, chief of construction in the National Research Council's building research division.

"The temperature maintained on most construction projects," he says, "is considerably higher than that required." But he cited the ability to control temperature, impossible in summer, as one of the big advantages of winter construction.

Typically, concrete is poured in frost-free forms, often with the aggregate and water heated, and then covered with a tarpaulin, sometimes with additional insulation. Heaters are sometimes added. The chemical action of setting increases or maintains the temperature of the mix.

Other construction operations, such as excavating rock, erecting steel and placing glass, are not affected by the cold, except in a reduction of worker efficiency. The latter can be overcome by a variety of ways such as Hydro's roofing procedure or with the use of strong, light plastic sheeting. Modern power shovels are generally undeterred by frozen ground.

In Timmins, a few year ago, half a dozen electrically-heated homes were built under a quonset-hut-shaped plastic bubble, with apparently good results. The double walls of the bubble were air-filled and self-supporting.

But the cost of the unit — about \$6,000 for an 80-by-50-foot shelter — is a drawback. Off-season uses might be developed to help defray the cost, and, of course, the bubble can be moved from job to job.

It has been shown, says Mr. Coulson of the National Employment Service, that fewer days are lost due to cold in winter than to rain in summer. Trouble with water seeping into excavations is another problem confined chiefly to the warmer seasons.

While it is difficult to assess the exact results of the various winter work incentive programs, or the cost advantages being obtained through improved methods and material, one thing is irrefutable — far more winter construction is being carried out than ever before.





Plastic, plywood and tarpaulins all help shield men and materials from wintry blasts at White Oaks all-electric subdivision, Clarkson. Work on Toronto's new City Hall, lower photo, proceeds yearround. Note tarpaulins enclosing rotunda.



MONEY BY THE HANDFUL



coin-filled pirate's chest helped sell ranges in St. Thomas.

easure Chest Special — a unique ckage promotion designed to stimute the sale of a particular appliance the area served by the sponsoring lity — made its debut late last year, St. Thomas.

Pronounced an unqualified success all the participants, the campaign tured electric ranges, which were moted from November 15 to Deber 24 by local appliance dealers I the St. Thomas Public Utilities numission.

According to W. J. Underhill, manr of St. Thomas PUC, much of the paign's effectiveness could be credited to the co-operation and close liaison established with the dealers at the outset and maintained throughout.

Early in September, the utility sent questionnaires to 19 appliance dealers in the city, to determine what appliance they would prefer to have promoted. They were also asked to suggest dates for the campaign period.

Results of the survey were then announced to the dealers who had come out strongly in favor of promoting electric ranges. Taking into consideration the desirability of this load from the utility point of view, and in the light of appliance saturation figures for the area, the program was launched.

Dealers were supplied with complete sales kits, made available by Ontario Hydro's Sales Division, including display cards, window banners, stickers and other "point-of-sale" materials. Not the least of these were realistic - looking pirate's treasure chests, supplied on loan, in which it was suggested that dealers display a 50-50 mixture of pennies and nickels. People purchasing ranges during the promotion were invited to help themselves to all the money their hand could hold.

To offset this expense, the utility paid participating dealers a flat sum of money for each range sold to a St. Thomas resident. Insofar as St. Thomas Hydro was concerned, the campaign was naturally limited to the city, but dealers could, at their discretion, extend the promotion to all of their customers.

Heavy support advertising was carried out throughout the campaign, chiefly in the daily newspaper, which also ran considerable editorial material on related themes.

One dealer, Jack Waite, of Jack Waite Appliances Limited, was particularly pleased with the results of the Treasure Chest campaign. He sold 10 electric ranges to St. Thomas residents, and eight to householders living outside the city.

"That's about one-third more than I sold during the same period last year," he reports.

"One of the best features of this kind of campaign is the emphasis on the local angle. This is a valuable complement to the province-wide promotion such as Hydro has carried out with refrigerators and electric clothes dryers.

"The progressive attitude toward promotion shown by the St. Thomas Public Utilities Commission should be duplicated in every electrical utility throughout the province," Mr. Waite says, "and you can quote me on that."



Lining the clouds with silver

by Jack Boitson

Ever since the beginning of time man has sought to harness the elements to his advantage. His ingenuity has turned wind, sun and tide to his profit but their actual control was beyond his imagination. Now he hopes to do something about the weather.

As more effort is put into research, we can expect an improvement in our knowledge of weather and its causes. In time, short and long-range forecasting will show improvement. Beyond lies the exciting prospect of weather modification on a really large scale — the control to tolerable bounds of hail, tornadoes and hurricanes. For the present, artificially induced precipitation shows the most promise.

Original attempts at rainmaking were confined to witchcraft and magic calculated to appease the rain gods. Any success with this technique was based on a simple premise — it always rains at the end of every drought. More than sorcery is needed today.

First scientific rainmaking experiments were begun by American scientists in 1946. Carbon dioxide pellets (dry ice) were applied to clouds containing liquid water droplets and this lowered the cloud temperature sufficiently for ice crystals to form. These then fed on the moisture of the surrounding droplets and, by a kind of chain reaction, increased rapidly in number and size. When heavy enough, they fell to the ground as rain or snow, depending on the temperature of the air through which they passed.

A year later another American scientist showed that similar results could be obtained with silver iodide crystals. They could be fed into the clouds in the form of a fine smoke

Cumulonimbus cloud in photo is ideal target for silver iodide crystals. Note rain shower at foot of cloud.

by using generators to burn the chemical at a high temperature.

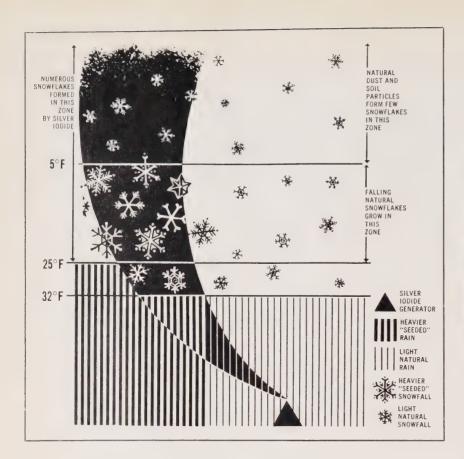
Ontario Hydro first became interested in lining clouds with silver 15 years ago. The Commission participated with the Canadian Meteorological Service in a cloud seeding experiment over Northeastern Ontario. Results were not too promising.

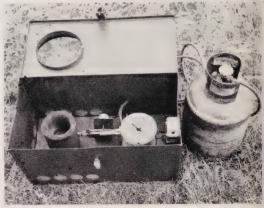
Since that time a great amount of research has been carried out throughout the world resulting in greater knowledge about formation of precipitation and improved techniques in weather modification.

For the past seven years cloud seeding projects have been undertaken in Southwestern Ouebec. Ontario Hydro's Research Division has followed results closely and conducted extensive statistical analysis of its own from available data. Consensus is that cloud seeding tends to increase the amount of rain that falls from clouds. Further evidence indicates that it is desirable to seed clouds in a watershed during a normal or dry season, at certain times of the season, but not necessarily when natural rainfall is heavy.

This past summer, the Commission was concerned about low stream flows and low water reserves in storage. Electric energy production from hydraulic plants in all areas except the Northwest was below normal and water resources were expected to remain critical for some time.

In late August last year Ontario Hydro teamed with Quebec Hydro, and a contract was let to seed clouds over the Ottawa River watershed upstream from Rapide Deux, northeast of Lake Timiskaming. Power plants of both Ontario Hydro and Quebec Hydro are supplied from this watershed. The seeding continued to the end of October. Costs are being shared, based on the proportions of the





One economical and effective method of cloud seeding is the production of silver iodide crystals from ground-based generators like the one above. Natural convection currents carry crystals to cloud level. Diagram left, illustrates the principle behind this rainmaking technique.

total developed head on the river at the stations of each power entity. So far, results have not been conclusively determined and evaluation studies are continuing.

Two methods of cloud seeding are practical. Seeding from the air with aircraft and from the ground with smoke-making generators. The most economical, in many instances, is the production of silver iodide from ground-based generators. This latter method was used by the company seeding the Ottawa River watershed last year.

In the ground-based generators, a solution of silver iodide, soaked in a fibrous material, is drawn through a high-velocity jet of burning propane gas, acting in much the same way as an alcohol-soaked wick in a Bunsen burner. The silver iodide is precipitated and the crystals are dispersed by the force of the heat from the flame. Natural convection currents assist in carrying most of the crystals to cloud levels. The ice-like crystals "fool" the moisture droplets in the cloud and they adhere to the crystals until enough of them assemble to raise the weight, causing them to fall towards the ground as precipitation.

In seeding a section of the Ottawa

River watershed, a total of 21 generators were positioned at pre-determined points within and around a 5,000-square-mile area. The actual seeding is done when cloud conditions are thought to be favourable. This may vary from zero to 20 per cent of the time in any given month depending on the weather pattern over the area to be seeded.

Any future cloud seeding ventures by Ontario Hydro will depend upon the results of continuing research studies and water conditions.

The Commission's meteorologist Don Gillies puts it this way. "We have adopted a cautious approach to the weather control subject. Since our initial attempt at cloud seeding in 1948, we have closely followed similar projects throughout the world, awaiting more conclusive evidence that cloud seeding does increase rainfall significantly.

"Six years of data from a cloud seeding project on a neighbouring watershed in Quebec gave statistical results which indicated that economical benefits could accrue to Ontario Hydro from a rainmaking program."

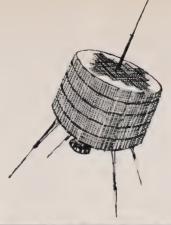
The art of rainmaking, although meteorologists prefer to call it the art of artificial stimulation of rainfall, is a relatively simple science to understand.

Clouds are typically composed of water droplets so small that they may remain suspended in the atmosphere for long periods without producing rain or snow. Cloud droplets do not freeze spontaneously on reaching the freezing point of 32° Fahrenheit. Instead, the droplets may continue to cool while remaining unfrozen for long periods; then if some mechanism or material is introduced to react with these super-cooled water droplets, freezing will instantly take place.

By introducing ice or silver iodide crystals to a super-cooled cloud, they begin to grow by capturing these super-cooled water droplets in much the same way that frost builds up in a refrigerator. When the ice crystals have grown sufficiently, they fall as snow, or if passing through warm air, as rain.

Although many people agree that rainmaking ranks as a practical science, and concede that under certain conditions lining clouds with silver does improve rainfall, no one really believes that ordering weather will be as simple as mail order shopping. No man can make rain fall from a blue sky!

EYE IN THE SKY



Most of us tend to regard satellites and the matter of space exploration n general as pretty absorbing stuff f somewhat far removed from the day-to-day operation of a utility. But there are indications that the Buck Rogers' era is moving closer to home. Ontario Hydro is studying the value of photographs taken from the U.S. Weather Satellite, TIROS VIII, as a possible aid in its hydro-electric opera-

Ice formation and movement on the Great Lakes, which seriously affects power production on both the St. Lawence and Niagara Rivers, is one of he earth's phenomena observed well by the orbiting satellite.

"Photographs relayed from space nay soon be of operational use to is," says Don Gillies, Commission neteorologist. "These photos might complement our present methods of visual observation from both ground ind air."

The TIROS project, short for Television and Infra-Red Observation Satellite, begun with the launching of riros i in 1960, is controlled by the J.S. National Aeronautics and Space Administration. It provides meteoroogical researchers with data designed o increase their understanding of the atmosphere and their ability to foreast the weather.

Pictures relayed from the two cameras aboard the satellite reveal land nass, and cloud formation and patern. Among the direct benefits have een the early detection of hurricanes, yphoons and tropical storms as well s the recording of ice movement in he Gulf of St. Lawrence.

Primary instrumentation of the TROS satellites consists of two teleision cameras and scanning and noncanning radiation detectors. Each of nese satellites have had the same exernal appearance and are 42 inches 1 diameter, 19 inches high and weigh



approximately 287 pounds. The sides and top are covered with solar cells, the primary power source.

Tiros satellites are launched into a nearly circular orbit at a mean altitude of about 475 miles, travelling the earth's circumference in about one hour and forty minutes, or about 14.5 times every 24 hours. Each camera takes 32 pictures per orbit, which are recorded on magnetic tape at "readout" centres on the ground. The tape is then played back on a TV screen and photographed for distribution.

Photos for study purposes are available from the U.S. Weather Bureau and from a read-out station in Ottawa, which began operation De-

This photo was taken from TIROS IV, in April, 1962. Georgian Bay and Lake Huron are visible to the left, with Lake Erie and Lake Ontario in the centre. Ice formation is indicated by white patch at upper tip of Lake Erie.

cember 21, but they cannot yet be obtained on a regular basis. However, the Meteorological Service of Canada is planning to transmit these pictures, by facsimile, across the country and these would be dispatched within an hour of receipt.

"When this service becomes available," Don Gillies explains, "we hope it will assist us to obtain maximum efficiency in the use of our hydraulic resources.'



gently flows the SQUAK-NA-GOSS-IPPI

ome of the most modern sawmills in the province are turning to electrity as their basic source of power—trend exemplified, perhaps, by the billies Brothers multi-million-dollar, bush-button band mill at Braeside in ontario Hydro's Eastern Region. With consumption in the neighborhood of 1,500 kilowatts, this mill is outtanding among the many installations where electrically-driven saws slash brough logs in a manner well calcuated to raise the eyebrows of the old-me lumberman.

But my story is not concerned with rogress. Rather, it is an account of kind of business which is rapidly dispearing from the industrial scene. refer to the Hope Mill, southeast of eterborough on the Indian River.

Unsung among its impressive competitors, this establishment has been perating continuously on direct water ower for more than 120 years. Gentaing the equivalent of 33 kilowatts om its two water wheels, the mill roduces only 1,000 board feet daily. It is one-man operation represents hat is probably the last feeble strongold of pioneer sawmilling in the east-n part of the province.

My visit to the mill generated some gh-voltage nostalgia.

Although it was a working day the mill was curiously silent as I approached it that mid-winter morning — silent enough to hear the thin curtain of water hissing down an open spillway on the three-bay dam. Still, there was someone about, for a plume of white smoke drifted from the crumbling fieldstone chimney and man-made knocking noises echoed from within.

I found mill owner John Miller Hope atop the penstock tank trying to free the main horizontal drivewheel from a thin sheet of ice.

"G'morning," he grunted, belting at the wooden wedges under the rim of the wheel with a sledge hammer; "should have let the water wheel" . . . thud . . . "run all night" . . . thud.

The drive-wheel finally loosened under the blows.

"The overflow" . . . thud . . . "froze it tight."

A final well-placed crack freed it. "There!"

And now that his labor had coaxed the antiquated machinery to life, Mr. Hope had little time for small talk.

Nipping up and down stairways, 71-year-old millman Hope guided drive belts over pulleys, tightened grease cups and soon the sound of the 52-inch circular saw rose to a vicious whine in the sawing shed.

Mr. Hope engaged the travelling beam drive under the log carriage. The saw screamed along the full length of the 18-foot straight pine log. A oneinch board flopped onto the sorting table. Mr. Hope piled it and repeated the operation until half a dozen logs had been reduced to a sizeable amount of merchantable lumber.

The sagging plaster walls in the upper story of the main mill building reveal the handmade ribs of the original living quarters of great-grandfather Squire William Lang who built the mill in 1840 for carding wool. Scot immigrant Richard Hope married a daughter of the squire and, being a millwright, soon added a sawmill. He apprenticed his sons and grandsons in all the intricacies of the muley, then circular sawing; lumber finishing; marketing; watermill maintenance and water power "engineering".

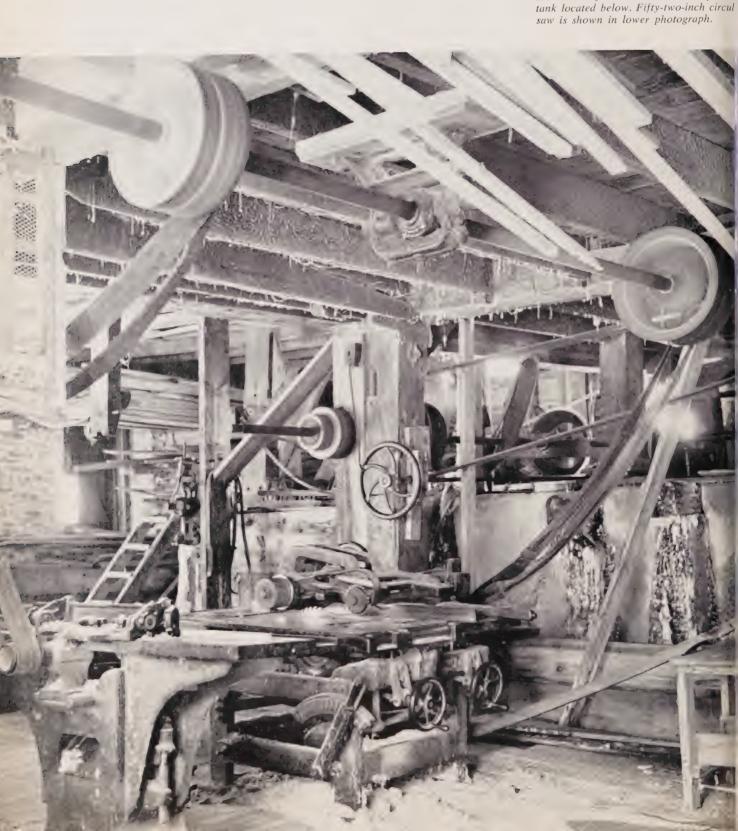
"It all adds up to a lifetime of learning," reflects great-grandson John Hope, sole operator-owner of the family mill since 1930.

As a gesture to the modern, the river level floor of Hope Mill contains a concrete penstock tank which encloses the 30 and 45 hp cast-iron horizontal water wheels. The room also houses a six-gang ripsaw, a jointer, a planer, drill press, jigsaw and 20-foot lathe.

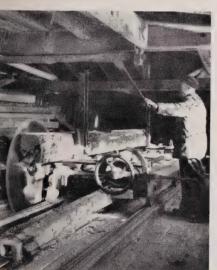
But the presence of Old Richard's guiding hand is still discernible in the great oak chest that contains a wealth of block planes and sturdy antique metal hand tools. There are also his

nong the last of its kind, this e-man sawmill near Peterborough more than 120 years old.

Maze of belts and pulleys in Hope mill is directly driven by water power. Wooden-toothed gears, opposite page, are driven by two water wheels in penstatank located below. Fifty-two-inch circul saw is shown in lower photograph.







barn-framing boring "machines" and two broad axes. Grandson John Hope still uses the tools, on occasion, and even finds bits of useful information in the dusty old record books that spill out of gaping cupboards.

The concrete piers of the ancient dam, which have replaced the rock-filled cribs since 1930, hold back a 12-foot head of water that floods back over one and one-quarter miles of the Indian River. The dam provides a log pond for the mill, a rich habitat for black bass and 'lunge and a swimming hole/rink for the surrounding farm folk.

"Last October," Mr. Hope reminisces, "a neighbor driving home from the mill spotted a flock of Canada geese on the pond. He hurried home, returned with a shotgun and got four birds." Mr. Hope received one of them, a tithe of sorts.

"Oh, the Indian is quite a river," muses millman Hope.

Thirty millennia ago the 25-mile river between Stony and Rice Lakes was a brawling Niagara when glacial Lake Algonquin drained its melted water through it into glacial Lake Iroquois. Today's rimrock limestone ridges and high-sited pot holes tell of a torrent a mile wide and eighty feet deep. Now it is little larger than a creek over most of its length.

Before the river shrank, and preceding the birth of Christ, Man put down his roots beside its great glacial delta at Rice Lake. He built mounds in the form of a serpent and eggs and for a century or two danced on them, used them for sacrificial altars, buried his dead in them—and disappeared.

The lush Indian River valley became a no-man's land until its woods, waters and open plains welcomed centuries of late-comer Iroquoian people as well as their Algonquin enemies. The present-day Ojibwas from the Lake Superior shore named the river

Squak-na-GOSS-ippi, the sweet water river.

French explorers and missionaries and fur traders used the Indian glory road. And at the turn of the 19th century the English, Irish and Scotch settlers found the placid river and the multi-soils of its old glacial valley to their liking. They cleared farms and built six water mills that produced carded wool and woolen cloth, flour and grist, furniture and lumber. But the millmen were not without power problems.

In 1837 a contractor blasted a "canal" in the granite plug at the Stony Lake source of the Indian River, to increase the flow of water. He was arrested and jailed overnight on charges of being a Rebel sympathizer because he possessed dynamite in that highly-inflamed Tory bailiwick.

The mill owners secured an "agreement" with the Trent Valley division of the Department of Transport to assure them of a minimum water flow of 55 cubic feet per second. The bargain has been upheld since 1850, and a two-by-four block, in place at all times between the bottom stoplog and sill of the Gilchrist Bay control dam, assures a continuing flow.

In 1903 two Indian River millers demanded more water of the dam caretaker and at gunpoint broke out the stoplogs. They were fined only, for destruction to Crown property, for the original "agreement" about rights could not be found. Aside from these small incidents, the Squak-na-GOSS-ippi has flown softly.

By early mid-winter dusk I prepared to leave the Hope Mill and asked for a light to complete some last-minute notes. Mr. Hope shook his head, for there are no lights at the mill. "When it gets too dark I go home," he explained, in a voice which contained no apology for a way of life which is fast disappearing.

District 5 OMEA Holds Annual Meeting

More than a hundred municipal utility commissioners from communities throughout the Niagara Peninsula and parts of Western Ontario gathered in Hamilton recently for the annual meeting of District 5, Ontario Municipal Electric Association.

Subjects discussed at the four-hour business session ranged from cost control and the collection of historical material to a searching analysis of association objectives at the district level

In reviewing developments in connection with a proposed Museum of Electrical Progress, Ontario Hydro Commissioner Lt.-Col. A. A. Kennedy, a member of the project's planning committee, revealed that valuable material had recently been received from Toronto Hydro. He also mentioned that considerable equipment of historical significance had been obtained from the Edward Dean Adams power house, now being demolished at Niagara Falls, New York, including one of the very earliest alternating current generators.

Commissioner Kennedy emphasized that the planning committee's terms of reference were so far restricted to the collection, refurbishing and cataloguing of material. He said that mobile displays would be made available from the collection for municipal Hydro purposes and for historical observances by other organizations.

In an address entitled "What Are We Doing Here?", Dundas commissioner Dr. J. D. Fleming reviewed basic association objectives, which, he said, included the obligation to take united action in matters relating to the welfare of the Hydro organization. He said: "as utility commissioners, we are responsible for one of the largest businesses in our respective communities and we must be cognizant of our duties. Your presence here today suggests that you are striving hard to discharge your obligations as commissioners."

Among the meeting highlights was a discussion on a resolution put forward at the last annual meeting of the parent association, asking for recommendations on the question of ownership of service entrance equipment by the utilities.

Speaking in support of utility ownership, Harry Foy, of Weston, said that this was never intended to apply to new homes. He said that in districts composed mostly of older homes, it was only possible to build load by first assuring adequate electrical capacity. Most delegates felt that the potential expenses involved were too great and the meeting voted against the principle of utility ownership of service entrance equipment by a substantial majority.

John Dawson of Dunnville led an interesting discussion on the "total energy" concept of supplying industrial and commercial complexes and other high density loads. He ended the session with a humorous skit in which "home economist" Arthur Fort of Port Colborne demonstrated a unique device for the generation of gas from electricity. It ground to a halt in a puff of white smoke.

In a speech covering a wide variety of topics of special interest to Hydro commissioners, Ontario Hydro Chairman W. Ross Strike urged that utility managers be freed from detail work in the interests of greater efficiency. "Don't have them doing work that should be handled by a clerk", he said, "let them get on with their own important jobs."

E. H. Banks, Ontario Hydro's assistant general manager, Finance, brought delegates up to date on the techniques of cost control.



New District 5 executive congratulates R. J. Jones, Niagara Falls, who was elected president. Others, from left to right, are: Jack Wratten Jr., Brantford; J. A. Camelford, Dunnville, 2nd vice-president; C. N. Swayze, Welland; N. R. Craig, Burlington; Gordon Bertling; Delhi; Dr. J. D. Fleming, Dundas; 1st vice-president; and W. R. Rannie, Beamsville, Commissioner George Klager, Fonthill, is absent.



This trio is examining a display of antique equipment assembled in conjunction with Lt.-Col. A. A. Kennedy's talk on a proposed Museum of Electrical Progress. Left to right are: John McMechan, 1st vice-president, OME Lt.-Col. Kennedy of the museum planning committee and C. N. Swayze of Welland Hydro.



along hydro lines



immins Helps Them Start

It gets mighty cold in Timmins, Ontario, but motorists patronizing the town's three municipally-owned parking lots don't have any starting problems. The lots are equipped with parking meters and to encourage the use of the lots, plug-in outlets for block heaters have been installed at each meter. There is a total of 56 outlets and the normal parking meter fee includes the use of the plug-in receptacle.

Energy consumed at the lots is metered by a demandenergy meter on a short term contract which covers a minimum of four months and the lots are billed at normal commercial rates. Floodlighting at the lots is also provided by the town which is served by Ontario Hydro as a local system.

flydro as a local system.

anal Project Underway

Work has commenced on the rehabilitation of Ontario Hydro's 43-year-old Chippawa power canal which draws off Niagara River Water, by way of the Welland River, to help supply both the Sir Adam Beck plants. Average flow in the 834-mile canal is approximately 8,000,000,000 gallons a day, which represents about one-quarter of the total amount of water used by the two plants.

Temporary closing of the canal will be necessary in order to clean out an accumulation of debris which has cut the flow appreciably, reducing the output of the plants. Repairs will decrease the likelihood of an emergency shutdown, with a major reduction in power production.

Hydro construction crews are presently tapering the steep canal banks in a section north of the Lundy's Lane Bridge. Work will start about April 1 on a cofferdam near the Welland River entrance to the canal. A second cofferdam will later be erected near the canal's outlet. Plans call for the draining of a seven-mile section during May. Debris will then be removed so that repairs can begin to the concrete lining. The project is expected to be completed by the end of 1964.

The two, $5\frac{1}{2}$ mile tunnels, which carry about three-quarters of the water supply to the Beck plants, will not be affected by the rehabilitation work.

Big Hydro Contract

A contract valued at approximately \$11,750,000 was awarded recently by Ontario Hydro to Babcock-Wilcox and Goldie-McCulloch Limited, of Galt, for the manufacture and installation of two steam boilers and auxiliary equipment for the final phase of the Lakeview Generating Station.

The huge highly-complex boilers will be almost entirely made in Canada. Each of the boilers, like those already installed in the plant, will produce 2,000,000 pounds of steam an hour which will reach the turbines at a pressure of 2,350 pounds per square inch.

The steam generators are the 7th and 8th ordered for Lakeview. When both are in operation — one is scheduled for 1967 and the other in 1968 — Lakeview will have a total capacity of 2,400,000 kilowatts.

At present, the thermal-electric station has two 300,000-kilowatt units in service. A third is scheduled for operation in April, and the remainder during the next four years.

The Galt firm's tender was the lowest received.

Excellence In Reporting



Winner of Ontario Hydro's 1963 award for excellence in rural news reporting is Mrs. Mollie Vidler, of Erieau. On her behalf, Russell Shearer, right, editor of the Blenheim News-Tribune, accepted the plaque presented by James A. Blay, Hydro's

Director of Public Relations, at the annual convention of the Ontario Weekly Newspapers Association held recently in Toronto. Mrs. Vidler has been reporting the news of Erieau in the Blenheim News-Tribune for more than 40 years. Her "Open Letter from Erieau", started early in World War II, served as a clearing-house for local news of interest to servicemen overseas.

Record Power Demands In Northeastern Ontario

The demand for electric power in Northeastern Ontario reached a peak of 590,000 killowatts in December, 1963, an increase of 4.4 per cent over the maximum demand in 1962.

In a year-end review, H. R. D. Graham, manager of the Northeastern Region, said the new peak, which had been achieved "in spite of some temporary curtailments in the mining industry, reflected the steady upward curve of industrial and commercial progress in this

part of the province.

"In addition to 1,063 electrically-heated homes," Mr. Graham said, "we have approximately 200 other all-electric buildings in the Region, including commercial establishments and light manufacturing industries." He noted that two sawmills were among the new users of electric heating.

R. M. Laurie Dies at London



The electrical industry of Ontario was saddened to learn of the recent death of R. M. Laurie, 64, manager of Ontario Hydro's Western Region since its formation in 1947 and a pioneer in the field of interconnected systems.

Born at Woodstock, Ontario, on July 31, 1899, Mr. Laurie graduated from the University

of Toronto in 1924 with a B.A.Sc. degree.

During his Hydro career, Mr. Laurie served as construction and operation chief load supervisor, Niagara Falls; operating superintendent, Niagara System; and power supervising engineer.

Mr. Laurie was awarded a Fellowship in the American Institute of Electrical Engineers for his outstanding part in the "development of interconnected pool operation of large electric systems on an international scale." He was also a member of the Professional Engineers of Ontario; London Chamber of Commerce; London Hunt and Country Club; Director of London Canadian Club, and a life member of the Niagara Fall Tennis and Badminton Club.

He leaves his wife, Audrey, and a son, Stuart, of Port Credit.

Sales Management Conference



Ontario Hydro and municipal utility management personnel responsible for sales activities recently completed the first of three sales management conferences scheduled for 1964. They are part of a continuing sales management staff development program being carried out by Ontario Hydro's Sales and Customer Relations Training Department.

Among the subjects discussed were market appraisal, long and short range sales objectives, priorities in sales strategy, budgeting sales expenditures and the setting of sales performance standards.

Sitting in on the first conference were commissioners E. C. Dash and W. E. Edwards, Sudbury, and A. J. Bennett, St. Catharines. They were enthusiastic about the substance and format of the course and can attest to its tangible benefits to management personnel associated with sales. Mr. Dash, president of the Ontaric Municipal Electric Association, is shown, pipe in hand at one of the sessions.

MUNICIPAL BRIEFS

St. Catharines PUC marks its 50th anniversary in 1962 and plans presently under way will ensure that it does not go unnoticed. Among the steps contemplated for the year-long celebration are special insignia for use on stationery, trucks, advertising and other suitable media; a 24-page souvenir booklet; banquet; outdoor sign and a three-day open house. To capture the interest of young people, an essay contest is being considered for which all Grade VII students in the city would be eligible.

Considerable interest is reported in the Christman guessing contest sponsored by Sandwich East PUC and mentioned in this column last month. Customers were asked to guess the number of killowatt-hours purchased by the utility from Ontario Hydro in December. The winner overshot the actual figure of 3,448,535 kilowatt-hours by 887,134.

The "hard hat" safe worker program of St. Thoma PUC recently ended its initial year of operation with the presentation of one-year safety decals to 27 members of the Hydro department. Under the program at employee receives a decal to be placed on his safety helmet for each year he works without a lost time accident. In making the presentations, Mayor V. A Barrie, chairman of the PUC, said "I wish to further impress on you the hard, cold fact that no one car overestimate the value of safe work — to you personally, to your co-workers, to your family and to your commission."

A new 12-suite medical centre at Woodstock is completely electrically heated. Entrance to the 10,000 square-foot building is heated by fan-forced, recessed base-board units while the suites employ heating cable in the ceilings. Freedom in furniture and equipment placement plus convenient control of examining room temperatures are among reasons cited for selecting electric heating.

Hydro's Showtime, the variety show featuring electrica appliances, is still high on the popularity polls if North Bay is any criterion. Over 550 persons attended a recent presentation there, under the auspices of the Scollard Hall Women's Guild. Ticket number 13 won a new electric range.

Things have changed for the better at Grand Bend PUC, according to Campbell Chapman, chairman Speaking at the inaugural meeting for 1964, Mr. Chapman recalled that 10 years ago, at the commission's

inception, meetings were held in a vacant barn where the seating consisted of empty meter packing cases. He contrasted this with the commission's present modern, electrically heated office and spacious new warehouse.

W. C. Rowney was re-elected chairman of Milton Hydro at the first meeting of the commission's 50th year. Among plans suggested for marking the anniversary was a proposal to illuminate the town hall.

Windsor Utilities Commission hopes to persuade the OMEA to hold its 1965 annual meeting in Windsor. The meeting, held jointly with the AMEU, attracts some 1,300 delegates from across the province and it has never been held outside Toronto.

Capreol Hydro will purchase a building for use as an office and service centre at a cost of \$11,500. It will be financed from available funds.

More and more hockey fans throughout Ontario are watching their favorite sport while basking in the warm rays of electric infra-red heat. Latest of many centres to provide this extra comfort in a bid to increase attendance is Elmira Community Memorial Arena. Recreation director Jack Sumner estimates energy costs at about \$2.50 per game. While the heating units reach peak capacity in a matter of seconds, they are switched on about an hour before game time to warm up the seats.

Seaforth commissioners believe in getting down to business while the dew is on the ground. Continuing the practice begun last summer, the PUC recently held its inaugural meeting for 1964 at eight o'clock in the morning. D'Orlean Sills was re-elected chairman. A member of the commission for 13 years, he begins his fifth term as chairman.

More than one-third of the privately-owned gas and electric industry companies in the United States and Canada spend about 75 cents a customer on advertising. This was one of the conclusions of the Public Utilities Advertising Association based on a survey covering the years 1960-62. Total advertising in newspapers, TV, radio and outdoor increased 18 per cent between 1960 and 1962. Radio enjoyed the largest increase but newspaper expenditures accounted for more than half of total advertising dollars.

In reviewing the highlights of 1963, before turning over the chairman's office to E. W. Allen, Charles Spicer of Sarnia Hydro was able to call it "a year of continual growth and activity." He noted, particularly, that electric heating had been vigorously promoted with gratifying results. Eighteen electrically heated homes were added during 1963, he said, "and it was the opinion of those closely associated with this promotion that we are only getting started."

Ajax Hydro has introduced a time-payment plan for financing complete electric heating systems, in new or existing homes, to run from February 1 to April 30. The utility supervises the installation and any necessary additional insulation, but all work is done by sub-contractors who are engaged on a competitive basis. Repayment may be extended over a five-year period.

OMEA-AMEU Convention

A record 1,500 delegates are expected to attend the 55th annual joint convention of the Ontario Municipal Electric Association and the Association of Municipal Electrical Utilities, March 1-4 at the Royal York Hotel, Toronto. Theme of this year's gathering is "Service More In '64".

Representatives from 355 municipalities will be treated to an interesting and varied program. A special feature this year includes Ontario Hydro's preparation of the topic, "Planning for Tomorrow". Speakers will include J. M. Hambley, general manager, J. P. Dobson, engineer in charge, Load Forecasts, H. A. Smith, assistant general manager-Engineering and I. K. Sitzer, assistant general manager-Production and Marketing.

Ladies attending will have an exciting time if they follow their special program. This includes, "Hamlet" at the O'Keefe Centre, a trip to station CFTO to watch a live telecast, a luncheon at the Ports of Call restaurant, a curling bonspiel, and a tour of Markham Village (Toronto's last bit of bohemia) to visit art galleries and to meet Edward Mirvish, owner of the Royal Alexander Theatre. So far, more than 275 ladies have indicated they plan to attend.

Nepean Township has established an interim committee of council preparatory to taking over the distribution system from Ontario Hydro as decided by a recent vote of the ratepayers. The committee will be responsible for Hydro affairs pending the election of a commission at the end of the year. Harry Hargreaves is chairman of the committee. Offices have been established in the township fire hall.

Retirement of V. A. McKillop as general manager of London PUC was described by the Free Press as ending "40 years of distinguished service. The PUC was fortunate in having Mr. McKillop trained to succeed Dr. E. V. Buchanan," the editorial observed, "and now in the person of the new acting general manager, A. L. Furanna, there is another executive who has been developed within the system. Through the years the Public Utilities Commission of London has built up a good reputation. In spite of the tremendous expansion of its activities there has never been a trace of scandal and the organization has a good name for efficiency of operation."

David I. Nattress, retired manager of Ontario Hydro's Northwestern Region, has been named 1964 chairman of Port Arthur PUC. He succeeds last year's chairman, James Currie, who becomes chairman of the transit department.

Veteran mayor George Simon of Alexandria died recently at Cornwall. Mr. Simon was serving his 18th year as mayor of Alexandria. He served in that capacity from 1918 to 1922 and from 1952 until his death he had been, almost without interruption, both mayor and chairman of the Public Utilities Commission.

Shade Tree Conference

The Canadian Chapter of the International Shade Tree Conference is holding its annual meeting, February 27 and 28, in Kitchener. The purpose of the conference is to improve the practice of aboriculture and stimulate a greater appreciation of shade and ornamental trees.

This year's meeting will devote considerable time to control of the elm bark beetle, carrier of the Dutch elm disease, and to the subject of insecticides in general. The agenda will also include talks by Ontario Hydro authorities on safety in tree work and on the selection of trees in relation to the site.

Substation Honors Commissioner



In keeping with its policy of naming substations after former chairmen, the North Bay Hydro-Electric Commission recently honored H. B. McCubbin, a commissioner for the past 11 years. He threw the switch at ceremonies marking the official opening of substation No. 6 — a 5,000 kva installation costing \$50,000.

Substation No. 1 was named for the late N. J. McCubbin, the present commissioner's father, who was the commission's first chairman in 1940. Shown at the recent opening ceremonies are, left to right: Mayor C. H. Hewitt; A. T. Smith, commission chairman; Mrs. and Mr. H. B. McCubbin and B. M. Graham, manager.

In Memory Of A President

A brief but moving ceremony held recently at Carleton Place, Ontario, exemplifies the esteem by which the late Morton W. Rogers was held by his associates in the electrical utility industry. A handsome plaque, donated by the Association of Municipal Electrical Utilities, and dedicated to Mr. Rogers' memory, was unveiled in St. James Anglican Church.

Mr. Rogers had been manager of Carleton Place PUC for 38 years and he was elected president of the AMEU in 1951. He was an honorary life member of the association and a member of the President's Counsel since it was established in 1957.

Shown at the dedication ceremony, left to right, are: Reverend G. A. Young, rector; R. S. Reynolds, Chat-



ham; John A. Torrance, Etobicoke, president of the AMEU; W. Ross Strike, chairman, Ontario Hydro and G. Roland Davis, Kingston.

Single Meter Billing For Apartment Buildings

Single or "bulk" metering of apartment buildings habeen made mandatory in several municipalities, following the passing of a permissive resolution by the Association of Municipal Electrical Utilities Rate Committee.

The resolution called for an amendment to the Stand ard Interpretation of Rates allowing municipalities to make this metering procedure mandatory at their own discretion.

Among those acting on the resolution were Etobi coke, North York and Scarborough — all with substantial apartment dwelling populations.

Proposed by the AMEU Central Region executive the amendment makes it possible for utilities to provid and read one meter for an entire apartment building One bill would be issued.

A report by the Central Regions Problems Committee last June suggested that the situation was analogous to the position of a hotel or motel.

Where made mandatory, bulk metering would probably apply only to new construction, and irrespective of method of heating. The building owner is billed for all electric energy consumed.

An assessment of the program is expected durin discussions at the AMEU Summer Conference at Bigwi Inn next June.

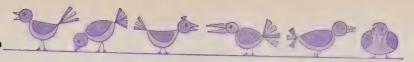
Energy Production In January

Primary energy provided by Ontario Hydro in January totalled 3.60 billion kilowatt-hours, an increase of 5.4 per cent over the same month a year ago.

Adjusted for seasonal influences, primary energy demand in January was 3.23 billion kilowatt-hours, 2.7 per cent lower than the previous month. The decline was caused largely by the change from cold weather in December to above normal temperatures in January.

The seasonally adjusted total for January represents 38.84 billion kilowatt-hours at annual rates. This is 279.2 per cent of the energy demand in 1949.

OFF THE WIRES



While the United States comes to mind at any mention of the affluent society, life on this side of the border can scarcely be called Spartan if our penchant for electrical appliances is any criterion. Such non-essential but soul-satisfying devices as electrically-operated can openers, carving knives, tooth brushes and shoe-polishers have all been welcomed into our homes



within the last few years. Now we are turning to electricity to help manage our snow problems.

Introduced to Canada about eight years ago, snowblowers are becoming common in our suburban areas and it is estimated that about 10,000 are sold here annually. Most of these are gasoline driven but electric models are now very much in the blow. Leading manufacturer in Canada is Sunbeam Corporation which entered the market last winter. Like electric lawnmowers, the blowers operate directly from the electrical outlet and feature reliability, light weight and convenience.

Whatever the state of the cold war, one of the greatest battles ever waged is continuing on a front which embraces most of the inhabited regions of the world. This is the fight against insect pests which is being carried out with continuing vigor, but not without criticism.

Principle weapons at the present time are chemicals and it is this aspect of the warfare which has given rise to the greatest controversy. The case against the indiscriminate and wholesale use of pesticides was brought to a boil by biologist Rachel Carson in her book "Silent Spring", which voices sincere concern that we may be gradually contaminating our environment to the detriment of animal and vegetable life, including man.

Certainly no reasonable person will deny the great contribution to agriculture, forestry, disease control and personal comfort which has been made by our chemists in the last few years. This work must continue but it should only proceed under conditions of complete control and with a full knowledge of long-term implications.

Biological control is another aspect of the war on insect pests which is commanding attention. This includes the introduction of insect species whose natural prey is the pest over which control is sought.

Canada is among the leaders in this field and the Entomology Research Institute for Biological Control, at Belleville, is the largest of its kind in the world. Many millions of beneficial insects provided by the institute have been released to attack pests in Canada and about a dozen pest species have been reduced to minor prob-

lems by this means over the years.

Other approaches being investigated range from sound waves to electrocution. Best long term results seem likely to accrue from a self-perpetuating biological control program combined with environmental manipulation and the selective use of chemicals.

Meanwhile, don't throw away your mosquito repellent and remember that winter is a good time to patch up those holes in the window screens.

Any question about dogs being man's best friend has been settled by a canine of Dominion, Nova Scotia, who refuses to let his master be served with a power bill. When an employee of the utility serving the customer was unable to gain access to his home because of the uncivil attitude of his dog, a stalwart police constable was entrusted with the delivery. He fared no better and at last account the town councillors were considering cutting off the power.

Perhaps they should get together with the United States postal service which plans to equip its letter carriers with some kind of pepper plant derivative with which to discourage overly-zealous dogs.



Hydro Alpinists?

Sir Edmund Hillary and his intrepid band must have looked like this as they inched their way up the rugged slopes of the Himalayas in their historic conquest of Mount Everest. Actually, the heroes in our photo are working on the curved white dome of the Douglas Point reactor building. This full-scale nuclear-electric development is scheduled for testing next fall.



This is one of 17 advertisements prepared for the municipal electrical utilities to assist in their local advertising programs. They feature a uniformity of layout designed to establish continuity and a "family" resemblance. Mats or stereos are available without cost from the Advertising and Marketing Services Department of Ontario Hydro.

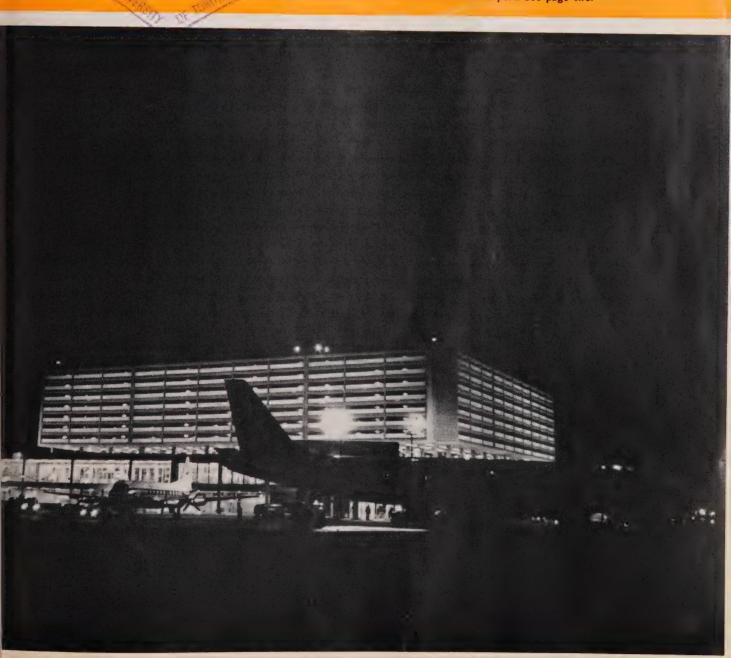
FOR JUST PENNIES A DAY, a modern electric dishwasher frees you from the drudgery of dishwashing forever! It washes, rinses and sanitizes your dishes automatically. Don't be a dishwasher—buy one!

your hydro

LIVE BETTER ELECTRICALLY

HYDRO NEWS MARCH, 1964

Electricity is the power behind the scenes at the Toronto International Airport. See page two.





All this collection needs is a little know-how to transform it into a high-speed electronic computer. The parts belong to Hydro's second Univac 11 computer installed last year. Fed by a data-gathering teletype network totalling 6,500 line miles, the computers are handling more and more functions as the EDP program progresses. Details commence on page six.



When ice covering much of the 10,000-square-mile area of Lake Erie attempts to pass through the narrow Niagara River during a major break-up, water shortages occur and power production suffers. The obvious solution is to prevent the mass movement of ice from the lake. One proposal to achieve this end is discussed on page 12.

MARCH, 1964

ONTARIO HYDRO NEWS

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THE COVER

Aglow with light, the new Toronto International Ai port is visible for miles across the flat fields of th Malton countryside—a beacon to the role of electricity in modern aviation. A bee-hive of activity 2 hours a day, this jet-age air terminal would grind 1 a standstill without its electrical life blood. Som of its electrical features are described on page two of this issue.

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Who Are These Men?

These men, and a thousand others equally dedicated to the welfare of Hydro in Ontario, convened earlier this month at the 55th joint annual meeting of the Ontario Municipal Electric Association and the Association of Municipal Electrical Utilities, at Toronto.

They came from 248 municipalities across the province where their duties include the administration and operation of Hydro at the local level. Together, their two associations enable them to speak with a united voice in matters of policy as well as in the technical, accounting and commercial fields.

At the meeting in Toronto they discussed subjects ranging from safety to electric heating and from pensions to rates for electric energy. Resolutions were considered bearing on such vital matters as a major river diversion and the amalgamation of three important electrical organizations in the province.

Their deliberations are of the utmost importance to the people of this province who are the real owners of the unique Hydro system.





See our April issue for details of the OMEA-AMEU annual meeting





Electricity animates \$42 mi

SKYWA



At the forefront of commercial avia tion from the start, Canada is now coming of age in the matter of airpor facilities. Like the farmer who devote all his effort to his barn and equipmen at the expense of his house, thi country had fallen behind where the comfort and convenience of the flying public was concerned. But this i changing fast.

Fine new facilities have been completed within the past few years a Gander, Montreal, Ottawa, Winnipes and Edmonton while Toronto, if i has suffered longer, has been rewarded the most handsomely. Officially opened in February, the Toronto International Airport is the latest work in efficiency and downright customer pampering. With its revolutionary circular aeroquay, traffic control system and many other innovations it is genand many other innovations it is genand.

ational airport at Toronto

TOMORROW



These photographs suggest jet-age atmosphere of new Toronto International Airport. From the left are shown: flight departure room, central concourse, outdoor sculpture, ramp lighting, control tower and "ring" building.









ally regarded as among the most Ivanced anywhere in the world.

Passengers arriving at the new airort drive through a tunnel directly to a nine-level parking area in the ntre of the circular terminal buildg. They then descend by elevator the embarking lobby, check their ekets and proceed to one of 12 parture rooms. When the flight is lled, passengers approach their ane through a short, covered, derture quay, one of six which proide like fingers from the doughnutaped terminal building.

Nothing has been overlooked in the roquay, which includes facilities inging from a restaurant to a nursery d from hotel rooms for short stopers to meeting rooms for busy ecutives.

Underlying the hustle and efficiency

of this jet-age beehive is electricity. The overall project involved electrical contracts on the order of three-anda-half million dollars while the aeroquay itself required 1,000 miles of wiring, 19,000 fixtures, 50,000 square feet of luminous ceiling and a snow melting installation totalling 97,500 square feet. The latter includes roadways in the debarking areas and the ramps to the parking floors.

Indicative of the role electricity plays at the new airport, electrical demand is now about 6,500 kilowatts, as compared to 50 kilowatts in 1942. When Malton Airport, as it was formerly called, commenced operations in 1938 there were 175 persons on the staff. Today it employs 3,000 people. And provision has been made in long-term planning for a second aeroquay, which if it materializes, will likely increase the load to about 12,000 kilowatts.

In designing the vital power supply, Ontario Hydro combined service security with the aesthetic. Two separate 27.6 ky feeders have been brought into a central powerhouse containing switchgear and two banks of 3-phase transformers. Cables radiating from here to substations at the administration building and aeroquay are entirely underground, as is the outdoor lighting throughout the airport area so that overhead wiring is nowhere in evidence.

Observation deck "superintendents" have not been overlooked as there are six such areas at the new airport. But some unfamiliar features will meet their gaze. They will be puzzled, for one thing, at the lack of fuel trucks scurrying out to meet incoming airAir conditioning plant (far right) utilizes four 625 h.p. compressors. Main power house includes switch gear (centre photo), hot water generating equipment and standby diesel. Photo (right) indicates extent of communication equipment used by traffic control groups.

craft. Their presence has been all but eliminated by an underground "tank farm" consisting of seventeen 50,000gallon tanks located well away from the terminal.

Some 1,900 horsepower of electrical pumping capacity is required to unload the highly volatile fuel from tank trucks to the "farm" and to pump it, via pipelines, to hydrants mounted flush with the tarmac in the aircraft loading areas at the aeroquay.

The control tower, which is normally found on the roof of terminal buildings, is located at the centre of the runway system at the new Toronto International Airport, resulting in improved visibility. Controllers, opera-



ting from a glass cab at the top of a 100-foot tower, direct air and surface traffic in the airport area. Below the cab in the new tower is the Toronto Area Control Centre.

Nowhere is the airport's dependence on electric power more in evidence. A bewildering maze of electronic equipment assists in landings and take-offs, control during flight, and establishing and maintaining the pilot's position at all times.

The magnitude of the operation may be seen in the job assigned to

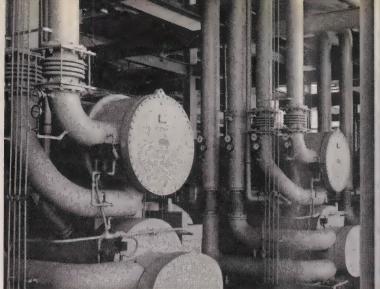
the Toronto Area Control. It is responsible for all airways and othe controlled air space within an area extending from Port Arthur to Ottawa and from the international border to Hudson Bay. The centre has access to 72 radio channels. Two surveillance radar systems keep aircraft under constant observation within a range of 150 miles. Radar "pictures" are available by closed circuit television to any controller requiring them.

A third radar system with a much more limited range provides such ac-

Ablaze with light, the new Toronto International Airport is an impressive spectacle after dark.









curate surveillance that the control ower is able to issue landing instructions under conditions of minimum visibility. It can even distinguish beween single and multi-engined aircraft.

Meteorology is another vital airport unction in which electricity has a part of play. Most noteworthy electronic levice is the "weather radar" which an detect precipitation and scan eloud accumulations far beyond the lange of the human eye.

Inside the parking area, electrically perated gates and ticket dispensers

are located at the entrances to the various levels and automatic detectors record the number of cars entering. A master control board keeps track of the number of cars on each floor while switches enable an operator to indicate where parking space is available. Ramps are equipped with electronic fire detectors.

The voice of the new airport is a 700-watt public address system in which 650 speakers cover all public areas and all floors of the parking building. A special all-call station can take over the whole system in an emergency.

Virtually every technique in modern lighting practice has been utilized within and without the airport building complex but the system most symbolic of the air-age is to be found in the traffic control room itself. Designed to reduce glare and reflection so as to facilitate reading of radar scopes, "black" lighting imparts a weird glow which is entirely in keeping with the atmosphere of this science-fiction world.

Aircraft load and discharge passengers at six of these quays which protrude from circular aeroquay.





IS THEIR

by Paul Chisholm

If quill pens and roll-top desks were the classic symbols of yesteryear's sound office administration, electricity is fast becoming synonymous with progress in the modern business enterprise. Man-directed electronic devices are taking much of the drudgery out of routine office work, while extending the scope of engineering and scientific computations to areas which could not previously be considered.

In keeping with its policy of introducing new and improved methods and equipment wherever they can be used to advantage, Ontario Hydro was quick to appreciate the potential of electronic data processing and is attempting to exploit these procedures to the limit of their usefulness.

Established seven years ago, the Commission's EDP system is now ed them properly

id Ontario Hydro's computers will

en suggest how to get

e most out of a generating station.

ovince-wide data gathering network feeds mputer centre, left, at Head Office. Ken ansfield, mathematician, and Bill Riggs, ief computer operator, are at Univac superory control panel. In photo, right, F. P. nomas (foreground) director of Data Prossing, and W. J. Patterson, personnel ficer, inspect second computer installation.

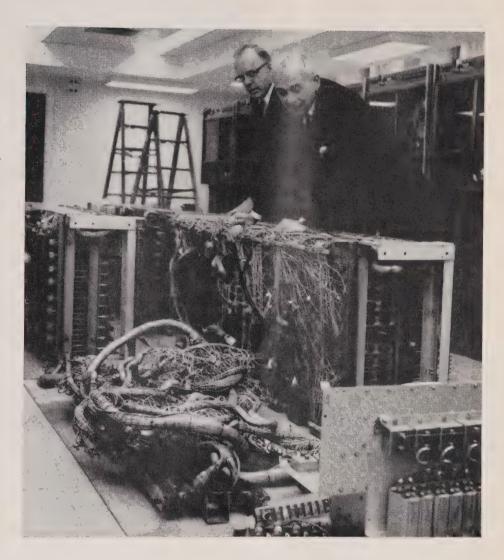
Ifilling the first two of its three prenounced functions. Like most busiss organizations, the Hydro enterise can be reduced to three basic ements — customers, employees and aterials. Computers already handle mands relating to the first two, and xt year will come to grips with the ard.

In its wider context, EDP might regarded as a system for the supply information needed in the adminitation of Hydro's vast and varied erations. As with any industry, its ntelligence" is based on information needed by statistical and financial ports, performance results, forecasts d trend indices, market research, gineering and other data studies.

At the centre of Hydro's EDP stem are two large-scale Univac II imputers, three electronic printers, to converters and an array of punch-card equipment, located at Head fice. Feeding them is a data-gathery teletype network tying in 150 llection points across the province. talling approximately 6,500 line les, the network conveys informant from individual area offices and ays it to Toronto through seven tional offices.

Hydro's second computer, purased in April, 1963, includes a ating point arithmetic device, which reases system versatility and speed, I makes it possible to deal with go quantities of data in a less compated manner.

The computers can handle up to 00 additions per second, 800 mory transfers, 500 multiplications, 1 300 divisions. Their capacity is



expected to be sufficient to deal with the Hydro work load until 1969.

The system is operated by a staff of 150, which is just slightly more than the number of employees previously required in Head Office to process direct-customer billing alone. And the number of direct customers has increased 30 per cent, to about 500,000, since EDP was established. Only seven persons are now required in the billing process.

"The customer system was integrated first because it represented the greatest volume, and the time factor was less critical," explains F. P. Thomas, director of Data Processing. "It was no great concern if we lost a day or two in billing in the early stages, but it would have been a different matter if we got behind with

the employee payroll, the next area we included."

Data Processing maintains a complete file on every customer. Each contains 700 characters of information, including delinquent payments, customer history and past power consumption.

Current meter readings and other information relevant to billing comes into the centre on paper tape and on a teleprinter, simultaneously. Like all information fed into the computers, it is transferred to magnetic tape to make up the billings. This work is done in a regular cycle, and in one week anywhere from 27,000 to 90,000 accounts are billed.

Secondary information obtainable from the billing process includes transformer loads, consumption trends, growth and future demand projections.

Employee payroll is handled in similar fashion to the customer system. "Employee information can aid in labor costing studies, work standards, and budget comparisons," says Mr. Thomas, "In all, 90 types of reports are obtainable concerning employees, and 85 concerning customers.

"We are preparing to move into the third phase of our computer program next year. The materials system will ultimately mean further improvements to inventory control information.

Engineering computations handled by Data Processing range from simple mathematical operations to complex power system studies to determine optimum designs for high voltage networks.

"Computers also make it possible to reduce tolerance allowances for materials," says Mr. Thomas. "How they would stand up to a wide range of conditions can be plotted on a scale which would otherwise be almost im-



Employee information files like this are kept up to date with computer's aid.

sary, adjustments or corrections can be made to improve overall operation, and avoid possible trouble spots."

In the case of new equipment going into Lakeview, pipe stress analysis and water heater calculations are made by the computers. When tenders are opened for the supply of turbo-generators, the computers can help assess the claims of the manufacturer from data and performance curves which are supplied.

Although Data Processing does not

stalled at individual homes and other locations behavior of resident loads can be better understood. Lo diversification and peaking studi have an important bearing on tran former and distribution system cap

The computers play an important role, too, in appliance survey studi which are carried out by the Sal Division. Through processing questio naires, the computers can arrive at c relations of saturation and plot tl potential growth rate with considerab accuracy.

When the cities of London and § Catharines annexed large outlyir areas some two years ago, Data Pro cessing was able to hand over con plete billing systems for the new cu tomers transferred to the municip utilities from Ontario Hydro. Afte final billing as Ontario Hydro custon ers, punched cards were produced t fit into the billing systems of the tw utilities concerned.

In spite of its great contribution t modern business methods, it is in portant to keep the role of electronic data processing equipment in prope perspective. In referring to the com puter, "electronic brain" is a misnome because it just cannot think. But pro perly programmed and operated b highly trained personnel, the compute can indeed digest a healthy diet c data.



Man is still master in the complicated world of electronic data processing.

possible to organize satisfactorily to say nothing of the cost."

Typical of the engineering assignments which Hydro's computers are assuming is a program to report upon the overall efficiency of the Lakeview thermal-electric generating station. Until recently, data logging of new units to obtain temperature measurements and flow, were taken manually. Readings are now taped automatically in the station's control room and transferred to magnetic tape at head office where they are audited, sorted and compiled. They are fed to the computers every 24 hours, and on a weekly basis.

"Essentially, operating staff can get a picture of plant efficiency for the period," explains Dr. Katsumi Okashimo, engineering and scientific programming supervisor. "When neces-

work directly for the municipal utilities, the benefits of its data analysis are far reaching and ultimately are of considerable value to them.

Load survey studies, for example, are processed periodically on behalf of the Consumer Service Division. Through digital recording meters in-



Nine-week courses help ensure adequate pool of Hydro employees trained in EDP.

OVE BETTER ELECTRICALLY?



Romance is one field of human endeavor which should be protected from the advances of technology. And yet match-making machines — kissing cousins, if you will, to computers — are programming Cupid right out of a job. Next thing we know, he'll have to turn in his bow and arrows for a stack of punched cards.

It all started when some un-romantic soul went into partnership with an electronic business machine, and set it to work pairing off young men and women in compatible twosomes. The idea caught fire, and match-making centres have been set up in several cities in the United States.

Those crazy Americans, you say? Don't say it too loudly. A Scientific Introduction Centre, using a business machine and punched cards, has been set up in the downtown area of staid old Toronto. And business, according to the boy-meet-girl people, couldn't be better.

"Miss Jones," the machine might intone, "meet Mr. Smith. Both of you like jazz, hate pizza, are allergic to dogs, and take long walks. You're ideally suited to each other. Have fun."

Actually, the computer-type machine used by the Scientific Introduction Centre doesn't match personality to personality, but by the process of card elimination, finds two or three suitable prospective mates for the inquiring client. Someone who's looking for a mother-image, for example, would never be happy with a clinging vine. And the machine will reject cards of all males under six feet for the gal who's 5' 11" in her stockinged feet.

If automated romance becomes fashionable, where will it end? Perhaps your great-grandchildren will depend on the local computer, instead of today's overworked mutual friends, for introductions. Or young couples will have to apply to a computer for compatibility tests before being issued a marriage license.

Amid the gloom is one note of cheer—they'll never be able to program so unpredictable an item as love out of the male-female relationship.

And love, they say, conquers all — even electronic computers.

HYDRO TAKES TO THE PLOW

In present day subdivision planning there is a growing trend towards the underground installation of electrical service. Freedom from overhead wires provides a neater appearance as the only surface equipment visible is the transformer kiosks, which can often be hidden by shrubbery, and the pipe and meter attached to each house.

One of the main barriers to the universal adoption of underground wiring is the cost of opening up trenches to carry the cables. The conventional method is time consuming and causes considerable disturbance of the ground. In addition there is inconvenience to customers, particularly when lawns have been laid and driveways paved before street lights are installed.

In an attempt to break through the cost barrier, and at the same time reduce inconvenience to customers, Ontario Hydro's Central Region has turned to the use of a cable laying plow.

This type of equipment, which has been used extensively for the laying of communications cables, has seen relatively little use among power utilities for underground wiring installation. But its portability and ease of operation, proved by experience in Central Region, may well extend the use of this equipment.

The plow will operate at depths down to 42 inches, and will install a single cable up to a diameter of 1½ inches, or a bundle of cables up to the same dimension in total.

In practice it has been found that a crew of three men is adequate. This includes a driver, a second man on the tractor to control the plow and a third man on the ground to hold the cable end and to keep an eye on things generally. With a crew of this size it has proved possible to lay 2,600 feet of cable in a four-hour work period.

Street lighting circuits can be prolaid, and the cable looped out at the site of the standards, which can the be installed at a later date.

Under driveways, or in other locations where it may be necessary to lifthe cable with the minimum disruption of paved surfaces, the machine will lay a pre-cut polyethylene duct simulataneously with the cable. When this required, cable and duct are taped to gether to prevent displacement during laying. The usual pull-through methoof making a repair can then be under taken.

The multiple laying of up to fiv cables is also possible. For example a controlled street light circuit togethe with the secondary cables for a domestic service can all be laid to gether.

Replacement of the surface soil is carried out merely by running the tractor over the cut. Some breakage of the soil occurs in partly frozer ground but under normal conditions established lawns can be traversed without damage. Similarly, a cut through driveway paving can be replaced easily and at little cost.

Because of the minimal disturbance of the soil, costly supervision of backfilling is eliminated, and there is no risk of brick rubble or other construction debris causing trouble later on.

The narrowing of the gap between the costs of overhead and underground wiring, improved relations with customers, and reduced problems of maintenance are among the advantages being experienced with this method of underground construction.

Central Region is making this equipment available to municipal Hydro utilities on a cost-rental basis, together with experienced personnel, when required.



Some soil breakage occurs in partly frozen ground, left, but lawns can normally be traversed without damage. Lower view shows position of reel with cable being played out through "needle" directly behind plow blade. Trench is opened and cable laid at a single pass. Soil is replaced by running tractor over cut.



ICE BOOM

Periodic and substantial reductions in power output result from La

Cold weather and the Niagara River combine each year to compose some of the most fantastic winter landscapes imaginable — but only at the expense of the customers of Ontario Hydro and the Power Authority of the State of New York.

Any condition which contributes to the cost of power must eventually be reflected in electrical bills and the ice situation on the Niagara is no exception. Material reductions in power production due to ice conditions are a costly proposition.

Over the years a number of steps have been taken to help alleviate recurring water shortages imposed by ice. For example, during the summers of 1962 and 1963 the Control Dam above the Falls was extended, ice escape channels in Grass Island Pool were widened and lengthened, and a shoal near Tower Island was lowered. In addition, Ontario Hydro and the Power Authority operate ice breakers in the area above the control dam to stimulate the passage of ice.

These measures have proven adequate for river ice and for a moderate amount of ice from Lake Erie but it has become evident that no facilities at this point in the river can cope satisfactorily with the quantities of ice discharged by a major break-up. Both power entities are agreed that further substantial improvements can only be achieved by preventing, or at least limiting, the sporadic and massive discharges of ice from Lake Erie into the river.

An ice boom may be the answer and the two supply utilities are proposing such an installation near the outlet of Lake Erie on a test basis. They plan to submit their proposal



through the governments to the International Joint Commission. The ice boom, approximately two miles long, would be located in an area where the flow is relatively slow.

An ice boom is made up of large floating timbers connected end to end with heavy steel cables and held in place by anchors spaced as required across the stream. It is placed in the river at the end of the navigational season and removed in the spring. Its function is to hold the thin ice in position as it forms so that an ice cover is established upstream from the boom. Once an ice cover is stabil-

ized the effect of wind on the surface of the lake is substantially reduced.

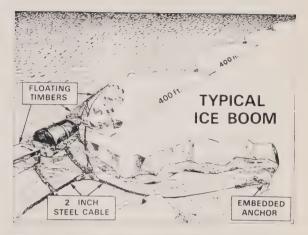
If exceptionally strong winds push large masses of ice against the boom the floating logs will submerge, permitting the ice to pass. When the wind subsides the boom returns to a floating position.

The Power Authority and Ontario Hydro have used ice booms extensively and with considerable success for a similar purpose on the St. Lawrence River. Six separate booms totalling over five miles in length have been constructed.

Both utilities emphasize that an ice

scharging into the Niagara River.





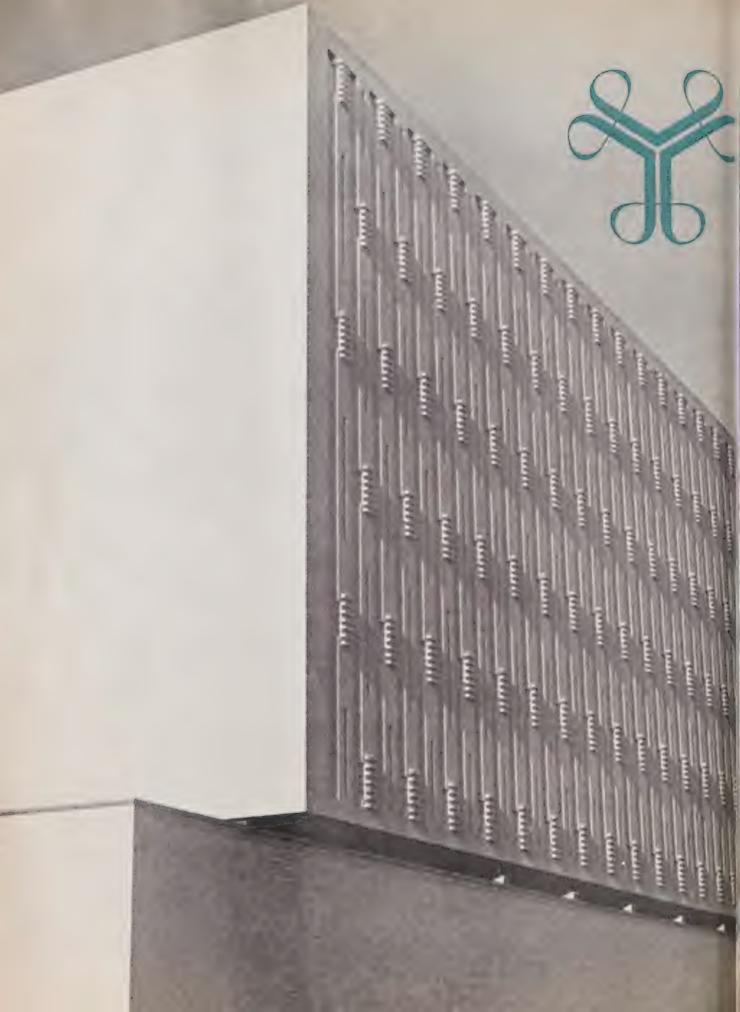


Aerial photograph, left, shows Lake Erie ice passing down Niagara River under South Grand Island Bridge. Artist's sketch, top, depicts typical ice boom construction. Photo, above, shows ice cover formed behind boom in St. Lawrence River upstream from Ogdensburg. Extent of ice problem on Niagara is suggested in lower photograph.

om is not a cure-all as ice condiins on Lake Erie are at times exmely severe. There is no guarantee to the proposed boom will work feetly under all combinations of ad, temperature and flow conditions. here is every reason to expect, howrer, that under most conditions the or will be effective and at least it the quantity of ice discharged to the Niagara River.

n addition to improving operating ditions on the Niagara from the wer production point of view, the boom should reduce ice damage civer-front properties.





POWER FOR A SHOPPING CENTRE

North York Hydro adds 10,000 kilowatts from a single source.

When a municipal Hydro commission oubles its customers in seven years, nat's progress. When the number of ustomers jumps from 50,000 to 00,000 in a seven-year period and ne utility claims to serve the fastestrowing municipality in Canada nat's North York Hydro.

"During 1963, we added 7,500 new ecounts," says D. K. (Don) White, orth York Hydro's assistant general anager in charge of engineering, onstruction and operations. "And that more than the total number of ydro accounts in the City of Woodock."

The peak load on the North York stem in 1963 was 262,000 kilowatts, ore than double the 1956 peak of 7,000 kilowatts. And at the end of 963, North York Hydro was about realize an additional load estimated 10,000 kilowatts from a single urce — Yorkdale Shopping Centre, e largest of its kind in Canada and ie of the most extensive in the world. Located on an 80-acre site at Duf-

ferin Street and Highway 401 in northern Metropolitan Toronto - a site served by the province-wide multilane highway and two of the Metro area's principal north-south traffic arteries — Yorkdale Centre consists of more than 100 stores, all of them connected by a vast enclosed mall which is heated in winter and air conditioned in summer. The L-shaped mall fronts stores with a total floor area in the neighborhood of 1,277,000 square feet.

Running beneath the mall is a truck concourse for underground deliveries to the centre's retail outlets. The concourse, or tunnel, was used to good advantage by North York Hydro as a site for its transformer vaults.

The vaults were built under the supervision of Taylor Woodrow of Canada, general contractors for the project, and turned over to the utility, whose engineers designed and installed the substations. Access to the vaults, located at strategic points in basement areas along the truck concourse, is restricted to Hydro personnel.

Seven of the vaults house transformers while another accommodates one of the distribution system's two breakers. The three largest transformer stations serve the Robert Simpson Company and the T. Eaton Company department stores and the project's own power requirements.

The high voltage system — 27,600 volts - consists of two separate supplies, one from each end of the shopping centre. Both are made available at each transformer vault. The high voltage control equipment in each vault is such that transformers may be fed from either of the 27.6 k.v. circuits.

Each of the vaults contains two transformers, either of which is capable, in an emergency, of carrying the other's load. In the event of failure of one source of power, there is an automatic throwover to the alternate supply.

Electricity to the major customers is supplied directly from the transformer vaults. Low voltage circuits emanating from 120/208 vaults, and installed on cable trays suspended from the ceiling of the concourse, supply the smaller stores in the centre.

As Don White puts it, "our service is tailored to fit the requirements of the people occupying the various premises.'

North York Hydro engineers worked on the Yorkdale project off and on since 1959 and had laid out the basic concept of the shopping centre's electrical needs long before construction was undertaken in 1962. The engineers

nds for Yorkdale, latest concept in dern shopping centre design. Eaton's t, vies with Simpson's and 100 other res serving 750,000-person market area.







Men above share responsibility for serving electrical needs of fast growing North York. Left to right these Hydro executives are: Reeve Norman Goodhead; E. M. Campbell, secretary-treasurer; A. K. Meen, chairman; R. P. Johns, vice-chairman; J. B. Gray, general manager, and D. K. White, AGM, engineering. In photo, left, engineering technician John Wright, centre, checks high voltage panel in concourse vault No. 8. Looking on are North York troublemen Wendall Gilbert, left, and Vic Groves. Aerial view of Yorkdale centre hints at extent of market area served.

also worked closely with the project's electrical consultants, Ellard-Willson Associates of Toronto, during the actual construction of the centre. "We assisted in every way we could," Don White explains, "just as we would in servicing a dwelling or any other customer in the municipality."

Developers and operators of the centre, Webb and Knapp (Canada) Limited, who number Montreal's Place Ville Marie among their enterprises, designed the shopping complex with a view to eventually serving a trading area of 750,000 people.

Yorkdale features free access throughout the more than 100 shops in the centre. No interior doors are visible during store hours. Glass panels slide into place after closing time to seal off the different units. The "doorless" theme is carried to the ultimate in the four-storey Eaton's building, where not even exterior doors are visible to customers entering the building directly from the centre's 1,600-car parking lot.

There are "doors", however, in the form of curtains of air created by powerful overhead fan systems. The air curtains act as barriers to the cold air from the outside in winter while containing the heated interior air. They serve a reverse function in summer, excluding warm exterior air while containing the cooled air generated by the building's 1,000-ton capacity air conditioning plant.

Another big air conditioning plant serves the Simpson's building and a third plant looks after the requirements of the mall and the remaining stores in the centre.

Taking the Eaton's building as indicative of the role played by electricity in the Yorkdale centre, the projected over-all load of 10,000 kilowatts appears conservative. In addition to the huge air conditioning unit the fan system, interior lighting and lesser electrically-driven installations and electronic equipment common to the modern department store, the building boasts two escalators, two passenger elevators and three 8,000-pound capacity freight elevators.

Add to this the extensive floodlighting of the vari-colored face of the building, which features pillars of Scandanavian granite at the entrance and it becomes apparent that the rea power behind the scenes at Yorkdak is electricity.



Hi-ho, hi-ho, its off to work they go at Harmon and Kipling on the Mattagami River. Construction camp at Little Long provides for workers at all three developments.

NORTHERN COMMUTERS

"Please step to the
back of the bus" are strange words
to hear in the depths of
the Northeastern Ontario woods.

Commuting for miles to and from work is a run-of-the-mill proposition in the urban areas of the province but to find a regular commuter service operating deep in the wilderness of Northeastern Ontario is another matter. This is what Ontario Hydro is operating in the rugged Mattagami River country 450 miles north of Toronto.

Each working day a convoy of yellow buses leaves the Little Long colony for the 13-mile trip down the road to the sites of Harmon and Kipling generating stations, Hydro's second and third power projects on this remote river. The buses carry about 300 men, who live in the sprawling Little Long construction camp and commute to their jobs. As many more travel by truck and other construction vehicles.

Thanks to the close proximity of the Mattagami sites, it is possible to develop all three from the main construction camp established at Little Long. Camp construction at Harmon and Kipling has been limited to such essential facilities as offices and maintenance buildings.

The Harmon-Kipling service would likely be envied by bus lines in Ontario towns and cities which have suffered declines in passenger business in recent years. There's no competition from autos, as the work area is only connected with the outside by rail, and traffic hazards are pretty well limited to the odd jay-walking moose.

With the completion of construction work at Little Long G.S., Hydro forces have shifted their attention to the other two projects. Work started at Harmon in the winter of 1962-63 and

today the site bustles with activity. The river has been diverted through diversion ports in the main dam, which were completed in time to carry the increased river flow when Little Long G.S. started operating last October. Rock excavation for the headworks and powerhouse is complete and concrete work in these areas is well underway.

Offices, garages and maintenance facilities as well as a crushing and aggregate plant have been erected between Harmon and Kipling to service the two projects.

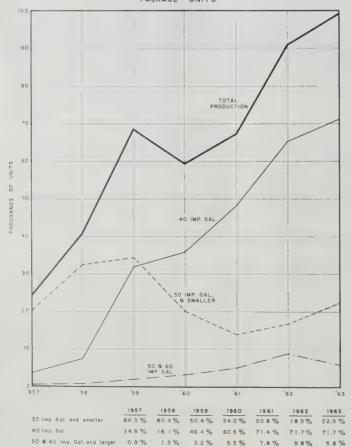
And a good start has been made at the Kipling site, the third Mattagami development about three miles downstream from Harmon. A second cofferdam is complete except for the closure gap and the diversion channel excavation is nearly finished. Concrete is being poured in the diversion port area and will be completed shortly.

Power commenced to flow from Little Long G.S. to the new Pinard Transformer Station, 27 miles southeast of Little Long, in October, and along the first leg of the extra high voltage line to the Sudbury area.





ELECTRIC WATER HEATER MANUFACTURING TRENDS ONTARIO PACKAGE UNITS



ON TH

Older Canadians may have trouble passing the bi-lingual test but one of the most recent additions to the homes of this country comes through with flying colors. We refer to the Cascade 40 electric water heater.

It all started last spring when the Canadian Electrical Association began considering names for its fast-recovery, 40-gallon electric water heating unit. Since the standardized tank would be promoted by the electrical industry throughout Canada, its name had to convey the same meaning, without changes in spelling, in both English and French.

Cascade 40 seems to fill the bill. The name was chosen to suggest a constant flow of hot water — ou, si vous parlez français, un écoulement assuré d'eau chaude — from a 40-gallon tank. And not so much as an acute accent is needed to make the name bilingually acceptable.

The Cascade 40 program is the CEA's first venture in uniting the promotional efforts of various segments of the electrical industry on a national basis. Water heaters were chosen for the initial campaign because they represent the utilities' most important single residential load.

As W. Ross Strike, chairman of Ontario Hydro, pointed out at the 54th annual convention of the Ontario Municipal Electric Association, water heater revenue of Ontario municipal utilities approached \$35,000,000 in 1962. "When you add together flatrate and metered water heater consumption, you arrive at approximately 50 per cent of the utilities' total residential kilowatt-hours," he said.

Another reason for promoting water heaters, from the utilities' point of view, is the high annual load factor. And water heater tanks with unbalanced elements, such as the Cascade 40 with 1000/3000-watt elements, provide an even more diversified load than those with balanced elements. The effect of the higher wattage, as compared with formerly popular 1000/1000-watt elements, is almost negligible on most system peaks.

From the electrical manufacturers' point of view the standardization of water heaters under the Cascade 40 program is an advantageous move. The CEA water heater program has

he full support of manufacturers reresented by the Canadian Electrical Manufacturers Association.

"Cascade 40 is the most important evelopment in the water heating field in the past 15 years," says Richard facDonald, national sales manager, water heater section, John Inglis Comany. The Inglis assembly line is turning out Cascade 40 units at the approximate rate of one every minute.

"The chief advantage of the Casade 40 program, as far as manufacturers are concerned, is that we can roduce a water heater which is standardized in tank size and element ombination," Mr. MacDonald says. You can have some 70 or 80 different varieties and combinations of elements alone. By producing a uniform roduct we can make larger producton runs and realize lower manufacturing costs."

In addition to the Cascade 40 prootion, which is vigorously supported Ontario Hydro and the associated unicipal utilities, many other effecve steps are being taken by individal utilities in an effort to increase e use of electric water heaters.

Rental plans are a case in point. ver the last few years, most utilities we been offering to install and serce water heater units for which the astomer pays a small charge in addition to his energy billing.

But few promotional concepts reain static and Sudbury Hydro, for ample, is now shifting the emphasis om rental to ownership, while retaing the easy payment features of the ntal plan. Under this time-purchase rangement, customers pay \$2.04 a onth until payments equal the price the tank installed. Or they can rechase the unit outright. Any nount the customer has paid in the st for a rental unit is credited to purchase price.

The purchase agreement includes 10-year guarantee on glass-lined 1ks, or 15 years for stone-lined 1ks, and free service over the same riods. Customers may call for service 24 hours a day, seven days a ek, and radio-equipped trucks are ailable for emergency calls.

Other utilities are introducing their n time purchase plans on the theory ut ownership entails greater load

security and appeals to many customers.

Woodstock Public Utility Commission has introduced a plan whereby customers who have been renting a self-contained electric water heater, are declared owners of the unit after six years. The utility undertakes to maintain the remaining four years of the 10-year warranty.

The new plan applies to all units rented since the inception of a water heater program in Woodstock three years ago. Customers with rental units when the new plan was started were advised by mail of the arrangement to provide eventual ownership.

Ontario Hydro is also introducing a new time-payment plan for the purchase of water heaters by its rural customers. Effective March 1, the plan enables customers to purchase a Cascade 40 unit at a cost of two dollars a month over a seven year period. The plan can be applied to units purchased through appliance dealers and electrical contractors.

And so the competition for the right to raise the temperature of the water used by the people of Ontario continues. Just a few of the measures being adopted by the electrical industry to secure a share of the lucrative water heater load are recounted here. Others run the gamut from a variety of incentives to all-media advertising, sales contests and the Medallion concept of all-electric living. The evidence suggests that the program to build load through the promotion of electric water heaters will be prolonged and without let-up.

As remarked by E. R. Alexander, a commissioner of Barrie Public Utilities Commission, in addressing a district meeting of the OMEA: "Webster's Dictionary gives one meaning to the verb 'build' which interests me. That meaning is: 'to create or produce gradually as a result of effort.'

"If we are to build our load it will only be done gradually and with a great deal of effort."

Ultimately, of course, it is the consumer who benefits when competition is keen. The harvest he reaps is in low cost, better performance and improved service. He is getting his money's worth in the water heater field.

SYMBOL OF PERFORMANCE



The Cascade 40 symbol is fast becoming synonymous with fast recovery family-sized electric water heaters. These are some of its characteristics:

- Produces hot water six times as fast as average use demands.
- Upper element, rated at 3,000 watts, provides 10 gallons of hot water in one hour.
- Lower element, rated at 1,000 watts, builds up a large reserve of hot water for normal use.
- Flip-flop control means only one heating element operates at a time. Independent thermostats control each element.
- Tank capacity of 40 Imperial gallons provides ample reserve.
- Ten-year guarantee covers glasslined tank.
- Full insulation keeps heat loss to a minimum.

Faucets as we know them are a thing of the past with this unit. Finger-tip control panel selects water of desired temperature and pressure. System utilizes solenoid valves located at water source.



Everything electric but the kitchen sink?

If everything is electric at your home but the kitchen sink—the chances are this essential piece of equipment is out of date. Or it soon will be.

With just about everything from the dish washer to the can opener electrical in today's kitchen, where Mrs. Homemaker is alleged to spend three months out of every year, designers have paused to take stock. And their eyes appear to have fallen on the sink, before which, we are told, 70 per cent of kitchen time is logged.

Their endeavours are bringing results.

One manufacturer is already marketing a "cuisine console" which, upon close examination will be found to include two taps and a bowl, the essential ingredients of the lowly sink - but with added attractions. And that's where the kilowatts come in.

The unit features a light source that forms an integral part of the sink and is designed to rescue the operator from her own shadow which tends to interfere when the light source is overhead and to the back. As a night light, the console lifts the sink out of the strictly functional class into a fashionable kitchen accoutrement. Other features calculated to lighten the burden of the household executive and bring joy to the heart of the electrical utility include:

- two built-in electrical outlets
- built in electrical power unit
- · accessories for mixing and blending food
- knife sharpener
- switch for electric garbage disposer

While automatic transmission is still not available on sinks, another company has come up with a device which takes the labour out of shifting from one tap to another. In fact, it eliminates the faucets.

Using a bank of electrically oper-(solenoid) valves, centrally located at the water source, the system automatically distributes variations of water temperatures and flows to any fixture in the house at the touch of a button. Finger-tip controls instantly provide hot, cold, or hot and cold water blended to any pre-set temperature. Even the pressure can be pre-selected by the pushbutton control panel at the sink or shower.

Not normally associated with avantgarde thinking in terms of plumbing or heating, the English are also zeroing-in on the sink. Two bachelors have

designed and are marketing a sink uni in which it is only necessary to turn the tap and flick a switch in order to wash, rinse and dry the aftermath or a meal for six. A bachelor's friend it can also be used to wash clother and small linen.

A thermostatically controlled electric immersion heater built into the sink keeps the water at a steady tem perature, while a fan unit tucked under the draining board sends a stream of air up through the bottom of the sink to bubble-wash crockery or shake the dirt out of clothes.

Switched off, the sink gives no clut to its extraordinary talents and take up no more space than run-of-the-mil contemporaries.

While it will be a long time before the sink will challenge the water heater as a utility load builder, these developments do suggest electricity's versatil ity. And designers are already shifting their sights to an even less glamorous item, this time in the bathroom.

From England comes word that the British Council of Industrial Design has put its seal of approval on ar electrically heated toilet seat which provides "a guarantee of warmth and acts as a guiding light in the dark."



along hydro lines

niversity Liaison

Among the most interesting developments to come from the recent Eastern Zone annual meeting of the Canadian Electrical Association was the establishment of a committee to foster co-operation between the electrical industry and Canadian universities. Utility and manufacturers' representatives will each compose 25 per cent of the committee's membership with the remainder being members of the engineering faculties of the universities.

The objectives of the new committee will include keeping the universities informed of new developments, techniques and problems in the electrical field, and of career opportunities. It is hoped that the move will help assure a sufficient supply of qualified graduates to fill the industry's needs.

ong Service at Toronto Hydro



James Cosgrove was in a class by himself at the recent annual get-together of the Toronto Hydro Quarter Century Club — not because he held the longest service of those in attendance — but just about the shortest.

Mr. Cosgrove, of the Service Maintenance Department, was the lone newcomer to the 25-year ranks this year. He was over-whelmed by 37 men and three women, representing some 1,600 years of service, who received 40-year buttons. The uneven distribution reflects the few employees joining the System during the depression and at the advent of World War II.

Also of the Service Maintenance Department, Bert Gives received a warm ovation from his fellow em-

ployees for his 20 years as a Club committee man.

Wandering minstrels provided the music and 300 long service personnel and retirees provided the song at the dinner held in the Crystal Ballroom. And among those enjoying themselves to the fullest were the two retired Toronto Hydro veterans, James Redsell, 91, and George Laughlen, 94.

James Cosgrove is shown in the photograph, centre, being congratulated by Toronto Hydro Chairman Bertram Merson, right, and John McMechan, vice-chairman.

Veteran Meterman Retires



In recognition of the many years he has contributed to the affairs of the Meter and Service Entrance Equipment Committee, H. Elliott McBroom, left, was presented with a transistor radio by R. S. Coles of the Association of Municipal Elec-

trical Utilities. The presentation was made at the final meeting of the committee to be chaired by Mr. Mc-Broom. He is retiring as engineer of the Meter Department, Toronto Hydro, May 1, after 40 years of service.

Mr. McBroom joined Toronto Hydro after graduating from the University of Toronto as an electrical engineer, in 1923. He was load supervising engineer prior to becoming engineer of the Meter Department in 1951.

In retirement, the McBrooms plan to build the ultimate in living comfort — an all-electric home.

Electric Service League Reports

The need for vigorous and continuing promotion of Red Seal and Medallion standards was emphasized by Harry Foy, secretary-manager of the Electric Service League of Ontario, at the annual meeting held recently in Toronto. He said that the changes in the Power Commission Act, whereby the installation of 100 ampere services and 20-circuit distribution panels became mandatory in new homes, had not lessened the need for promotion.

"It has become evident," he said, "that more promotion is necessary if a new home is to be equipped with circuits and outlets required for modern electrical living and if the circuit capacity now provided by the regulation is to be used. A higher level of service entrance equipment is of little value to either the customer or the utility if it fails to provide convenience for one and revenue for the other."

Mr. Foy also placed importance on the need to emphasize the advantages of modernization of the electrical installation in older homes. He said: "practically all such houses plus many built today are electrically obsolete; this places a very serious restriction on the utilities' load promotion program and on the



These executives were elected to head the Electric Service League of Ontario for 1964. Left to right, they are: Harry Foy, secretary-manager; T. J. Curtis, New Toronto PUC, president; R. L. Mooney, Square D Company, 1st vice-president; and W. R. Harmer, Ontario Hydro, 2nd vice-president.

market for new appliances and equipment in general."

In outlining the many ways in which the League endeavors to educate the public to better electrical living, Mr. Foy drew attention to a new development undertaken in the Eastern Region. Here, the field representative, working in co-operation with local manufacturers and utilities, trained some 20 Boy Scouts in the basic fundamentals of electricity. The boys thus qualified for their Electrical Merit Badges and the program's success is expected to result in its expansion to other parts of the province.

Western Region Manager



Gordon M. McHenry, manager of residential sales for Ontario Hydro, has been appointed manager of the Western Region, with headquarters in London. He succeeds R. M. Laurie, who died February 15.

In his new position,

Mr. McHenry will direct a staff of approximately 1,000. The Region supplies electricity to 87 municipal electrical utilities in Western Ontario, and also serves 80,000 rural customers directly through 18 rural offices. He was consumer service engineer in the Western Region prior to joining the Sales Division.

Shortly after his appointment, Mr. McHenry was honored at the 42nd annual meeting of the Association of Professional Engineers of Ontario, in Niagara Falls.

The APEO presented special Sons of Martha Medal awards to Mr. McHenry and two other engineers, "in recognition of outstanding and devoted service to the association". The name of the award is derived from a poem entitled "The Sons of Martha", written by Rudyard Kipling, which refers to the engineering profession's contribution to society. Mr. McHenry is shown in the photograph, left, receiving the award presented by Blake Goodings of the APEO.

A recent graduate of the University of Waterloo's electrical engineering department, Carl L. Heck, also received an award, the Medal for Academic Achieve-

ment. One of nine recipients of the award, Mr. Heck is now a member of the engineering department of the Kitchener Public Utilities Commission.

MUNICIPAL BRIEFS

Waterloo PUC intends to introduce a plan whereby customers who have been renting a package-type electric water heater for eight years are declared owners. "Because the rent pays for the heaters, including depreciation and service charges," explained Ivan Bradley, manager, "It seems logical to turn them over to the customers". He feels the plan will stimulate rentals. Woodstock has a similar policy.

Village of Athens has elected its first Hydro commissioners. They are Lyman Judson and Charles Stickney who, with Reeve Layng, will make up the commission. Hydro had previously been administered by a committee of council.

A weekend open house attracted hundreds to the first all-electric home in the town of Acton. Local hydro commissioners and staff were on hand to explain its electrical features which included cable heating installed in the ceilings. General reaction to the Acton concept of push-button electrical living, as summed up by the Guelph Daily Mercury, "This is for me."

Riverside PUC is planning major extensions and improvements to its office and service centre which will double present floor space and triple outside storage area. The utility is presently renting two garages and using a substation building for storage.

William J. Fisher, chairman, New Toronto PUC and president, OMEA District 4, presented handsome silver cups to the two winners of the Metropolitan Toronto Zone Public Speaking Contest. The provincial finals, to be held in Toronto, March 30, are co-sponsored by Ontario Hydro.

Barrie PUC manager H. J. Murphy has been appointed secretary-treasurer of the Georgian Bay Municipal Electric Association. The post became vacant with the death of Robert Butter of Owen Sound.

Cobourg Church Hockey League officials are whistling a happy tune these days after their most successful "Young Canada Night" in history. More than 3,000 people passed through the turnstiles, reports the Sentinal Star, breaking the 1961 record when Maurice Richard was the special guest attraction. This year's big drawing card was infra-red electric heating—plus the presence of hockey players Dick Duff and Eddie Shack. "People arrived earlier and stayed longer", the newspaper reported, "probably because the new infrared heating system made for comfortable viewing."

Ontario Hydro has purchased a number of 4,800-watt, 240-volt portable electric heaters which it is making available to builders constructing electrically heated homes in areas served directly by Ontario Hydro, or to utilities for use by builders within their service areas. A weekly rental of \$2 is charged. The plan is intended to help overcome the chief obstacle to winter construc-

tion of electrically-heated homes—plaster drying. Electric heating systems are normally not installed at the time of plastering.

Hespeler Hydro will purchase a \$20,000 garage property directly across from the present office for use as a service centre. Eventual construction of an office building on the newly-acquired site is contemplated.

Emerson Banks of Shelburne has been appointed office manager of Alliston PUC—a position to become vacant April 1, with the resignation of Miss Tena McLean, secretary-treasurer, who has served the utility for 22 years.

An estimated total of 600 all-electric homes are presently under construction in Central Region and it is predicted that this number will increase greatly during the spring and summer.

Kitchener PUC is converting its flat rate water heater services to meter operation. About 10,000 units will be affected.

Toronto Township has enlarged the service area of its Hydro commission to include all of the township and is paying almost three-quarters of a million dollars to acquire certain distribution facilities owned by Ontario Hydro. And Port Colborne Hydro will pay almost \$200,000 for Ontario Hydro assets acquired as the result of annexation.

A 10-year program to modernize the electrical system at the Canadian National Exhibition has been approved. Estimated cost of the program is between \$500,000 to \$1,000,000. CNE manager Hiram McCallum noted that the wiring in some of the buildings was more than 50 years old. He said the electrical load had increased by 600 per cent in the past 13 years.

When Ajax Hydro opened its handsome new office and service building in 1958, facilities were deemed adequate for the foreseeable future. But local growth has been so great that a \$16,000 addition is presently underway. It will provide additional garage and warehouse space.

In a year-end report, Burlington PUC noted that its rental water heater installations now totalled 1,960—an all-time high.

Two all-electric apartment buildings with a total of 32 suites are nearing completion at Owen Sound.

Yorkwoods Village subdivision near Toronto represents a break-through in the row housing field in that its houses are being offered for sale rather than rental. Purchasers receive a right of occupancy which is essentially a 99-year lease with renewal rights. Ownership rests with a trust company. Some 1,700 units are planned. Monthly payments cover everything but the telephone. Power for the entire project is to be metered by a single meter, at the all-electric energy rate. First phase of the project, consisting of 119 units is virtually complete. All are heated electrically to Triple Seal standards.

Oshawa's well-lighted business streets have been further improved with the recent installation of 78 400-watt color-improved mercury vapor lamps. Oshawa PUC manager J. Bruce Annand points out that the 78 new

lamps use only 34 kilowatts compared to 48.5 kilowatts used by the lamps they replace. At the same time, street-level illumination is greatly improved.

How old is old in the life of a Hydro pole? Some wooden poles being replaced by steel in downtown Napanee are said to be 60 years old.

Kilowatt-hour consumption per domestic customer of St. Thomas PUC continues to reflect satisfactory growth. It increased from 436 per month in 1962 to 460 in 1963. Consumption was 423 in 1961.

Delhi PUC plans to purchase property for the erection of a new office building during 1964. It must vacate the present building by the end of the year.

I. S. Patterson of Canadian Controllers Limited has been re-elected president of the Electric Club of Toronto.

Owen Sound Manager Appointed

John Gurnham of Preston has been appointed secretarymanager of the Owen Sound Public Utilities Commission, filling the position left vacant by the death of Robert Butter. He commences his new duties April 6.

Mr. Gurnham has held the post of secretary-manager of the Preston Public Utilities Commission since 1957. Both utilities administer water and electrical departments.

Born in Montreal, Mr. Gurnham graduated in electrical engineering from McGill University in 1949. He began his engineering career with the Cornwall Street Railway Light and Power Company and served as chief engineer with the St. Lawrence Power Company before joining the Brantford Public Utilities Commission in 1956 as planning engineer. He was chiefly concerned with frequency conversion at Brantford.

During his term with the Preston utility, Mr. Gurnham has directed a vigorous load building program and has been active in the affairs of the Association of Municipal Electrical Utilities.

On The Subject Of Taxes

Speaking recently to the Kiwanis Club of Picton, R. J. Boyer, M.P.P., second vice-chairman of Ontario Hydro, had this to say on the subject of taxes:

"There is a misconception held by a few that Hydro is by some means tax-free. I would like to correct this false notion.

"We don't pay profit taxes, if that's what is meant—and the not-very-mysterious reason is simply that we don't make profits. I remember Premier Robarts on this same subject saying he just wished he knew how to tax profits that don't exist.

"We do pay taxes though — and not in trifling amounts.

"Hydro is exempt from real estate taxes under the Power Commission Act — but it does pay grants in lieu of taxes, in amounts fixed *not* by Hydro, but by the Department of Municipal Affairs.

"These grants, for land and administration buildings, are equivalent to full municipal taxes.

"For large power installations, the grants are estab-

lished by a special formula which recognizes that it would be unfair for one municipality to benefit unduly from a large installation in its jurisdiction at the expense of the province as a whole. And these installations are often in remote, unpopulated areas. Those in or near municipalities make virtually no demand on municipal services.

"Hydro's grants in lieu of taxes amounted to \$4.4 million last year alone.

"And we pay for the water we borrow to produce electricity. Last year, with river levels and flows below normal, we paid \$6.1 million to the provincial and federal governments in water rentals.

"That comes to ten-and-a-half million dollars to all three levels of government. I would be remiss if I didn't mention that your local electrical utilities paid another \$1.8 million to their municipalities in taxes.

"Oh! yes — just one more thing about taxes: Hydro pays the same sales taxes as everyone else."

Computer Programming

Among the latest developments in the dynamic field of electronic data processing is a new system said to eliminate the task of programming the computer for scientific computations. Known as the BOUMAC macro system, it was developed by the U.S. Department of Commerce. It enables a scientist with no programming knowledge to perform standard mathematical operations on sets of data with a high-speed electronic computer.

EHV Heading South



Despite rigorous winter conditions, construction of the second phase of Ontario Hydro's Extra High Voltage transmission line is slightly ahead of schedule. A work force of 360 men supported by a variety of heavy equipment and a helicopter, has pushed the line more than 60 miles south of Sudbury.

Construction workers on the line are housed in six mobile camps, approximately 10 miles apart. The camps leap-frog south as the job progresses. Each has a full-time cook and recreational facilities which include TV sets, movies and sports equipment.

V-shaped towers were used in the first section of the line — extending 230 miles from Pinard Transformer Station, 60 miles north of Cochrane, to the Sudbury area — which was placed in service at 230,000 volts last fall.

The second section covers 170 miles from Sudbury to Barrie, and for the first 50 miles of this section. Y-shaped towers are being erected. They will take the line as far south as the Pickerel River. Hydro will revert to the V-towers for the remainder of the line. The second section, to Barrie, is to be completed by September, 1965. The final phase, to Kleinburg, just north of Toronto, is scheduled for completion in 1966.

The line will be stepped up to 500,000 volts when Harmon and Kipling generating stations have been completed.

U.S. Group Impressed

Engineers and executives from two United States electric power companies and a large electrical manufacturing firm visited Metropolitan Toronto recently to inspect electric heating installations in major commercial establishments.

"We are very envious of the progress you Canadians in the Toronto area have made in electric heating of large commercial buildings," Ray J. Bergman of United Illuminating Company, New Haven, Connecticut,

"There is a tremendous future for electric heating in Canada and in most sectors of the United States. You people in Canada are showing the way to get results. We have been very impressed with your achievements in the field of electric heating and air conditioning of large buildings."

The group indicated that their inspection trip would be the forerunner of visits by large groups of U.S. engineers and executives from the electrical industry and by architects.

Among the projects inspected were the Thorncliffe Shopping Plaza, in Leaside; the Toronto Telegram's new building in Toronto; Ontario Hydro's Central Region headquarters in Willowdale, and the 180 suite Islington Towers Apartment building, Etobicoke Township.

Energy Production In February

Primary energy provided by Ontario Hydro in February totalled 3.37 billion kilowatt-hours, an increase of 5.5 per cent over the same month a

For the first two months of 1964, the total is 6.97 billion kilowatt-hours, up 7.2 per cent over the same period last year.

Adjusted for seasonal influences, primary energy demand in February was 3.25 billion kilowatt-hours, 0.6 per cent more than the previ-

The seasonally adjusted total for February represents 38.97 billion kilowatt-hours at annual rates. This is 280.2 per cent of the energy demand in 1949.

OFF THE WIRES

A Toronto physician has a prescription for longevity which should have wide appeal. He calls it the 3-S formula and, reduced to its fundamentals, it recommends indulgence in sex, salads and scotch. We were amused by a comment on the good doctor's formula which appeared recently in the Reader's Digest. If rabbits drank scotch, the item observed, they would live forever.

Another tidbit of medical advice, this one from the Canadian Heart Foundation, rather tickles our fancy. "Don't let your fingers do the walking," comments the Foundation's publication, The Pulse, "contrary to popular advice given by the telephone company — let your legs do the walking. That was what they were meant for — not your fingers!"

Perusing The Pulse further, we found that it, too, had something to say on the 3-S formula. Its advice: (1) eat plenty of salads. They contain some of the few natural foodstuffs we still eat. (2) Taken in moderation, Scotch (or any form of spirits) is an excellent blood vessel dilator, relieving tension and often helping to ensure a good night's rest. Taken in excess, it can do much harm. (3) Take a wholesome interest in the opposite sex. This is a perfectly healthy instinct and will tend to focus your attention on the pleasure of living rather than on the fear of dying.

All very reassuring. We had thought one had to be miserable to be healthy.

The 55th joint annual meeting of the OMEA-AMEU has been written into the records and it will take some surpassing. Final registration figures indicate that a total of 1419 persons were in attendance, including 299 ladies. As AMEU manager Ron Mathieson points out, this was the largest convention ever, with 248 municipal utilities registered. Together, these represented 97 per cent of Ontario Hydro's municipal load.

This is indeed a remarkable turnout, considering the distances some of the delegates were required to travel, and it speaks well for the unity of the Hydro family in Ontario. Credit for the meeting's success must be shared by many as a gathering such as this involves a vast amount of organization, without which only chaos could result.

Special mention might be made of the spirited drive for increased registration carried out during the past year by Ted Dash, retiring president of the OMEA. Setting his sight's high, he aimed for the 1,500 figure and lost no opportunity to solicit support for his objective at district meetings across the province. He is to be congratulated for falling short by less than one hundred.

Last month we had something to say in these columns about the control of insect pests by means other than chemical. We have since read in Electrical World of promising experiments with electricity. The use of ultraviolet radiation, supplied by a fluorescent tube, has long been used by the U.S. Agricultural Department to attract and trap insects for test purposes. The question now is whether these devices may also be used for direct control measures.

Experiments on the use of these electric traps for control are being conducted on hornworms that feed on tobacco leaves and stalks. One report indicates that eggs and larvae of the hornworm have been reduced by 58 per cent in a 113-square mile test area. It's a bit early to consider the effect of these traps on load building but one researcher envisions these devices on every power pole with many others in the fields.

If Thomas Proulx of the London PUC seems a little squirrely, he is only doing his job. The oversized rodent he is carrying is a fibreglass cover for a trash can in London's renowned Storybook Gardens. This year four squirrel covers will be added to the kangaroo covers already in the park. And it all



"Feeding" the squirrels is encouraged.

makes sense. As PUC officials (who administer recreation) point out, children will go out of their way to use waste receptacles which they find attractive. British Columbians agree. Gargoyle-like "garbage gobblers" are used throughout the parks in that province and the kids really do go for them.

"Don't do as I do — do as I say" may have been all right in the army but in the electric utility business it's much more effective to practice what you preach. A tip of the hat is due to the following municipal utility personnel in the Western Region who have demonstrated faith in their product by building electrically heated homes of their own:

R. N. Holmes, manager, Thamesville; G. Near, superintendent, St. Mary's; C. L. Leach, assistant manager, Chatham; D. H. Pope, manager, Sandwich West; J. F. Anderson, manager, Leamington and J. McCreight, office manager, Strathroy.

Gold stars should also go to the following who have converted their homes to electric heating: G. D. Hines, manager, Harrow; G. Weldern, superintendent, Essex; D. M. Seath, manager, Stratford and J. Vanderheiden, sales manager, London.

This list was compiled by the Consumer Service staff of the Western Region in whose direction anyone omitted should direct his wrath.



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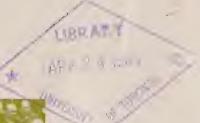
your hydro

LIVE BETTER ELECTRICALLY

Thi desperiments prepared for the municipal electrical utilities to associate for the municipal electrical utilities to associate for the programs. They feature a uniformity of layout designed to establish continuity and a "family" resemblance. Mats or stereos are available without cost from the Advertising and Marketing Services Department of Ontario Hydro.

55th ANNUAL CONVENTION

Details of this important meeting commence on page one





HYDRO NEWS

APRIL, 1964

OMEAAMEU

APRIL, 1964

ONTARIO HYDRO NEWS

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THE COVER

Cross-section of delegates on our front cover suggests the number attracted to the business sessions of the 55th joint annual meeting of the OMEA and AMEU. These two associations represent the voice of the municipal electrical utilities of the province. Details of their deliberations commence on the opposite page.

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HYDRO CONVENES IN TORONTO

Ever since the earliest years of this century, when the electrical utility industry was truly in its infancy, the Ontario Municipal Electric Association has played a vital role in the success of the unique partnership which is Hydro in Ontario. Composed of elected and appointed commissioners, the OMEA represents those utilities which buy their power requirements at cost from Ontario Hydro and distribute it on the same basis within the municipalities.

Through its meetings, committees and resolutions, the OMEA has been able to present a clear picture of the problems encountered by the municipal Hydro systems and to secure the co-operation of Ontario Hydro in their solution.

A second important force in the Hydro undertaking is the Association of Municipal Electrical Utilities. Its members include management and senior operating staff of the municipal systems and it is concerned with administration and technical problems involved in the supply of power and its distribution.

These are the two groups which met in Toronto last month on the occasion of their 55th joint annual meeting. With a vigor and enthusiasm undiminished over the years, a record 1400 delegates were on hand to discuss matters ranging from rates to electric heating and from pensions to the constitution of The Hydro-Electric Power Commission of Ontario.

Details are on the following pages.



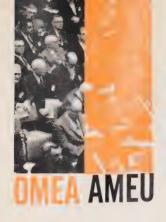


OMEA EXECUTIVE

These OMEA executives will lead the association in 1964. Left to right, front row, are: W. E. Edwards, Sudbury; E. C. Dash, Sudbury, past president; John McMechan, Toronto, president: Dr. R. H. Hay, Kingston, 1st vice-president; and Dr. J. E. Wilson, Barrie, Second row: J. D. Phillips, Schreiber; Roy Warwick, Blenheim; L. A. Waddell, Lindsay; F. J. Edwards, M.P.P., Palmerston; J. J. Cross, Huntsville; W. J. Fisher, New Toronto; Donald Watt, Orangeville; and R. S. Sheppard, Aylmer,

AMEU EXECUTIVE

AMEU executives for the new term include, left to right, front row: J. K. Fee, Kingston: John Torrance, Etobicoke, past president; J. W. Hammond, Hamilton, president; Stanley Webster, Tillsonburg, vice-president: and A. L. Furrana, London. Back row: J. P. Dawson, Dunnville; R. M. Senyshen, Kitchener; M. H. Kelly, Atikokan; W. R. Mathieson, manager: J. F. Anderson, London; Stewart Holt, Midland; and H. W. Little, Brockville.







John McMechan

J. W. Hammond

JOHN McMECHAN President OMEA

McMechan is an historic name in the annals of Ontario Hydro. The OMEA was reminded of this when John McMechan, vice-chairman of Toronto Hydro-Electric System, accepted the new presidency. He replaces Sudbury Hydro Commissioner E. C. (Ted) Dash.

Mr. McMechan, who still retains the soft brogue of his native County Down, came to Canada as a teenager. He pointed out during his speech of acceptance that a McMechan with the same family roots in Ireland was a member of the original committee from London, Ontario, which made the historic trip to Toronto to urge the setting up of Ontario Hydro.

"I have always been proud of the fact that he was from the same family, even though somewhat removed," he said.

Mr. McMechan has been a member of the Toronto Hydro commission since 1953, and for the past seven years has been chairman of the board, Toronto East General Hospital.

A past president of District 4, OMEA, he is a member of the Danforth Business Men's Association, the Toronto Board of Trade and the Canadian Chamber of Commerce. A member of Riverdale Kiwanis Club, he is also prominent in his fraternal society. He represented Ward 1 as a school trustee for a year, then as an alderman for four years before his appointment to the Hydro commission. He was elected vice-chairman at his first commission meeting.

In business life, Mr. McMechan is president of Donlands Dairy which he founded in 1929 and is today the largest independent dairy in the province. He started making home deliveries in the east end of Toronto from a horse and wagon. Under his shrewd and dynamic leadership the company has expanded over the years until it handles some 5,000,000 pounds of milk a month. During his career with the dairy Mr. McMechan has worked at every single facet of the operation.

On the subject of Hydro, one particular point stands out in Mr. McMechan's mind: the go-it-alone era or do-it-yourself policy has ended — no matter how big a utility may be.

"In our mixed economy," he says, "all utilities have their own particular sizes and types of industry and homes to serve. These will continue to demand innovations in our individual Hydro systems, and separate decision and actions. These should, of course, continue to receive highest priority . . . but it is essential that we maintain a strong provincial association. Let us put our individual commissions first, the OMEA District second, and Ontario next."

Another point Mr. McMechan feels strongly about is communications. "Let us do our best to keep our municipal authorities directly informed about the management and generalities of Hydro so that they may judge for themselves what they read and hear from others."

JAMES W. HAMMOND President Ameu

A solid accounting background coupled with 38 years experience in electric utility work are just two of the valuable assets the new president of the AMEU brings to his job. His many others include an outgoing personality,

an intimate knowledge of utility operatio enthusiasm, and a sound background in the association.

General manager and secretary of the Hamilton Hydro-Electric Commission since 1953, James W. Hammond started in the accounting department in 1926. In terms load, Hamilton is the second largest utility Ontario. It serves some 85,000 customers at has assets in excess of \$60,000,000.

A native of Hamilton, Mr. Hammond receive his education there and went on to comple courses for a diploma in industrial accountin He has been attending AMEU conventions f some 30 years, serving as chairman of the Accounting and Office Administration Section a number of occasions.

In accepting the responsibilities of his ne post with the association, Mr. Hammond statche hopes to continue the same high standa of work achieved by the group to date.

"We intend to concentrate on the compl tion of projects now underway and to co solidate our tremendous gains before embar ing on too many new projects. Our goal is give the best service possible to all AME members and to work in close harmony a co-operation with the OMEA and Ontario Hyd for the satisfactory solving of our mutu problems."

Mr. Hammond has acquired a wealth utility experience that will help him provious leadership to the association. Hamilton is progressive member of the Hydro family, having received first Hydro power in 1911, and has achieved a proud record of public service. The city is one of the most heavily industricized in Canada, with energy consumption industrial customers estimated at nearly 1 billion kilowatt-hours last year — by far t



E. C. Dash



J. A. Torrance



W. Ross Strike

greater portion of the utility's total energy sales.

Stepping up from vice-president of the association, succeeding John A. Torrance of Etobicoke, the new president is a past chairman of the Hamilton Chapter, Society of Industrial Cost Accountants of Canada, and a past president of the Niagara District Electric Club.

C. DASH

he retiring president suggested a new area of responsibility.

In his presidential address, E. C. "Ted" Dash uggested a new responsibility which might properly rest with the OMEA. As the representative of the electrical utilities of Ontario, the rganization should "bring pressure to bear" expedite nuclear energy research, he said. Reminding his audience that billions of dolars were being spent to land a man on the

ars were being spent to land a man on the noon, the CMEA president expressed the view nat "surely some of this money can be alcoated to research on nuclear energy, which will benefit the human race as a whole beause the modern way of life is electrical."

All parties concerned, he said, including the ntario and federal governments and Ontario

Hydro, should speed up research on this source of energy. The speaker said that Ontario Hydro had a research and engineering program "second to none" in the field of nuclear-electric power, "but there is a limit to how far they can go in research with the finances and resources at hand."

In this connection, he suggested that the mining companies themselves should do more research. "The success of the great International Nickel Company has been due to their extensive research into uses for their product when the demand was falling off," he pointed out.

"Ontario's uranium deposits in the Elliott Lake area are sufficient to supply the electrical needs of Ontario, of Canada and the entire world, far into the future," Mr. Dash claimed. "Elliott Lake and its mines must not be allowed to go back . . . as I see the future, millions of more kilowatts will be needed and uranium is going to play a big part in meeting this demand."

Reviewing 1963 operations of the OMEA, Dr. Dash noted an "awakening" in the activities of the district associations, and he congratulated the district officers on the high calibre of the programs and work sessions which were offered during the annual meetings last fall

He called for solidarity in the OMEA ranks, suggesting that members seek amiable solutions to problems as an alternative to proclaiming their difficulties for the whole world to hear. He said that in the face of the greatest competition in our history, all of our Hydro organization must be strongly united.

Turning to the question of electric energy sales, Mr. Dash reported a continuing increase during the year. "It has been interesting to note how receptive the public has been to electric heat," he said, "which I am sure will be the leading form of heat in the next few years."

He also announced that a technical educational program for local commissioners would be inaugurated this year. "Give it your support, he urged, "and remember that competitive business requires more attention and effort than formerly; we must all have a thorough knowledge of our duties and our electrical systems."

JOHN TORRANCE

He offered five points to remember.

One of the youngest president's in the history of the AMEU, John A. Torrance, Etobicoke, offered five thought-provoking points to delegates in his final speech prior to relinquishing office.

The retiring president urged local utilities to emphasize domestic re-wiring. "Co-operate with the Electric Service League to develop your own programs in this important field," he said.

Acknowledging that it was not practical to expand the staff of the league to encompass thermal insulation inspection, Mr. Torrance recommended that the present field staff of the league should be trained and qualified to make thermal insulation inspections if required.

Turning to electric heating, Mr. Torrance warned delegates that some electrical contractors were not assuming full responsibility for electric heating installations. "This means that you must assume this responsibility yourselves before awarding the Triple Seal of Quality."

He added, "If you can't do this with your



own staff then arrange to have it done for you."

Mr. Torrance also urged delegates to strive for proper co-ordination on building projects, be it one house or a development. "The local utility representative **only** should make the initial contact," he said. "It should be understood, however, this recommendation does not apply to areas of general promotion."

The final recommendation put forward by Mr. Torrance emphasized the need for all concerned to work together on advertising and sales programs. "This means the Advertising and Sales Co-ordinating Committee of the OMEA, AMEU, and Ontario Hydro, together with officers of the Electric Service League and the Electric Heating Association," he said.

Two presentations were made to the retiring AMEU president — a scroll depicting his achievements during his term of office, and a portable television set. The presentations were made by Ronald Harrison, Scarborough, past president of the association.

W. ROSS STRIKE

The Hydro chairman sees more to business than a balance sheet.

Like any business organization, electrical utilities are statistically-minded. Progress is usually reported in numbers of customers, kilowatt-hour consumption, miles of line, and so forth. The development and success of the Hydro enterprise is charted yearly by groups of figures which steadily grow in size.

While essential to the operation of any business endeavor, statistics do not tell the whole story.

Abstract concepts such as dedication,

loyalty, integrity, cannot be totalled on a balance sheet; nor can the intangible spirit of the Hydro family.

W. Ross Strike, Ontario Hydro chairman, reminded delegates to the OMEA-AMEU annual meeting that the intangible values underlying the Hydro family spirit "are fragile and delicate plants that require constant attention and care."

Drawing on two decades of experience as a member of the Ontario Hydro Commission as well as his years as a member of the OMEA, Mr. Strike found an intent audience as he talked about the Hydro family. Does it exist? Is it important?

Such a speech does not read well in excerpt form. But in the following lines we have set out a few quotations to illustrate Mr. Strike's philosophy of the Hydro family — past, present, and future. The complete speech has been made available to municipal commissioners and to the public in printed form.

- "Let us never forget that the most cherished jewel in our Hydro family is the integrity of each individual who belongs to it."
- "The whole energy situation cried out for solution and the obvious key to this end was co-operation among the municipalities, both large and small, in which selfish and parochial interests were pushed aside and the principle of the greatest good for the greatest number hoisted to the masthead, where to our eternal credit it has continued to remain flying in the breeze and the high winds through all the stages of our development."
- "Our family spirit in the early days was hammered out, refined, and shaped in the crucible of what then seemed endless public controversy. . . . "

- "All these circumstances developed unique type of individual. They were sel reliant, ingenious, loyal, and devoted to the jobs."
- "Over the years and throughout our organ zation, this family spirit has been develope to a very high degree. In fact, it has become our hallmark."
- "We have come a long way and there no end in sight. We have kept the faith an vision of our pioneers, who were not to be denied their demand that their dream of great co-operative enterprise to generate an distribute electric energy in the provinc of Ontario become a reality."
- "This has only been accomplished by th continued development of the original concep of co-operation between its functioning components and the building and nurturing of through the years by our unique and ver essential family spirit. That . . . is the cornel stone of our structure, no matter how larg it becomes."









RESOLUTIONS The Machinery of Change

These grassroots sessions have had an important bearing on Hydro operations over the years.

If all the resolutions submitted at the 55th annual meeting of the OMEA were passed as presented, and enacted, they could change the constitution of Hydro in Ontario; fuse three mportant electrical organizations and divert the course of a great northern river.

They were not - but the machinery set n motion at these sessions will likely have a significant effect on various facets of the unique Hydro operation in the years ahead.

These resolutions originate at the various district meetings of the association and they are brought before the annual meeting for approval, amendment, referral or rejection. Several hours are devoted to these sessions and delegates are given every opportunity to express their thinking and to vote as they see fit. No less than 26 resolutions appeared on this year's agenda.

Most controversial of all perhaps, was the ecommendation that the composition of The lydro-Electric Power Commission of Ontario be hanged to consist of a chairman appointed y the provincial government and a commisioner from each of the nine districts of the IMEA. Submitted by Port Elgin Hydro, the reolution provoked heated discussion before lelegates approved an amendment by East ork Reeve True Davidson that it be tabled nd referred to the incoming executive for tudy and report at the next annual meeting. In explaining the intent of the resolution,

W. R. Tomlinson, Port Elgin, said the proposed change would correct a lack of liaison which he felt existed between Ontario Hydro and the municipal utilities at the administrative level. "Such a Commission as I suggest," he said, "would be able to speak up for our region and for the interests of the various parts of the province in matters of local concern."

A motion from District 1 asking for a reassessment of Hydro's advertising policy in the light of the aggressive methods being used by natural gas distributors also sparked heated debate. Among the measures urged in the resolution was a province-wide scheme of financing to assist customers.

Dr. R. H. Hay, Kingston, forecast trouble with municipal councils and local banks and said, for his part, he would prefer to stay away from credit. Leonard Coulter, Ottawa, said that he was very much impressed with the quality of advertising already being carried out by Hydro and he felt it was in no way inferior to that of the competition.

Delegates finally agreed that the Advertising and Sales Committee, composed of representatives from Ontario Hydro, the OMEA and AMEU, undertake a study of present policy, particularly with a view to providing a stronger common front.

A resolution put forward by District 6 asked the Ontario Economics and Development Minister to state his department's policy and reasons "in promoting the use of gas, distributed by a private monopoly, in preference to electrical energy, generated and distributed by the municipalities and Ontario Hydro on behalf of the people of Ontario.'

It was explained in the preamble to the resolution that gas had been specified for heating and water heating in all 26 units of a low-rental housing project, in Galt, even though Galt PUC had entered into negotiations to make electricity available for these purposes. The motion was carried.

As the result of a Sarnia resolution, the OMEA will study the advisability of consolidating the Electric Service League of Ontario, the Electrical Bureau of Canada (Ontario), and the Electric Heating Association into a single organization. Behind the resolution was a desire to avoid possible duplication of effort.

While supporting the idea of a study in this area, Bertram Merson, Toronto Hydro, urged that the Electric Service League be maintained as a separate entity in order to get on with the vital job of promoting adequate wiring.

Emergency measures procedures were the subject of a resolution submitted by Listowel PUC and sanctioned by delegates. The resolution suggested that the Emergency Measures Organization be contacted regarding courses at the OMEA-AMEU district level which could be made available to all utility employees.

On the grounds that continuity of planning and policy would be better served by having a staggered system of electing members of municipal Hydro commissions in those municipalities where elections were held every two years, District 9 submitted a resolution setting out such a procedure. It was decided that the resolution be referred to the OMEA Board of Directors for clarification, after which it would be forwarded to the Mayors and Reeves Association for consideration.

Yet another study may be undertaken as the result of a recommendation by Port Elgin Hydro. Whereas Ontario faces tremendous industrial growth and present hydro-electric resources in Southern Ontario are virtually





exhausted, the Port Elgin motion points out, therefore Ontario Hydro should undertake a feasibility study of the Harricanaw River diversion project. This vast undertaking would involve reversing the flow of the river from Hudson Bay to the Great Lakes system.

District 4 went on record as endorsing the action of Lt. Col. A. A. Kennedy and Ontario Hydro in setting up a committee to acquire and preserve a collection of historical electrical equipment, and studying the feasibility of a museum of electrical progress. Strongly supporting the endorsement, Leonard Coulter said it was most important that the history of Hydro development in Ontario be preserved, and he urged that a permanent museum be established without delay.

On a more technical theme, Sarnia Hydro recommended that continuous current rating be included on the name-plates of certain items of electrical equipment such as service entrance switches and distribution panel-boards because continuous loading had resulted in cases of failure under the present system of rating which recognizes the diversity factor. The problem will be referred to Ontario Hydro and the AMEU for study and recommendation.

Underground distribution construction and policy was the subject of a resolution put forward by Barrie PUC. Delegates agreed that a study be carried out to determine how best to achieve lower cost underground through standardized procedures and advanced technical knowledge.

Other important resolutions approved by delegates during the convention concerned the following:

 Heat loss calculations be expressed in British Thermal Units instead of watts as the former are more familiar to contractors, builders, plumbers and allied tradesmen.

- A province-wide standard be established for metering cabinets.
- A schedule of power bank capacities be drawn up for use by utilities in determining where these banks should be located and under what conditions customers should be required to pay for their own transformers.
- Each regional sales office employ a trained insulation inspector who would be available
 to utilities on a cost basis to inspect buildings
 to be heated electrically.
- Uxbridge and Port Perry Hydro utilities be transferred to the jurisdiction of District 4 OMEA from District 2 through a re-adjustment of boundaries.

Two resolutions having to do with the costing of power were withdrawn in the light of the extensive studies being undertaken by Ontario Hydro along these lines at the present time. Results of the studies are expected to be available before the next annual meeting.

Among the resolutions defeated was one requiring that electrically-heated homes be insulated to specific standards. Delegates also refused to support a resolution asking that customers moving from one municipality to another be required to present a certificate of credit standing from the previous utility before service is connected at the new address.

PLANNING FOR TOMORROW

An innovation at this year's convention, Or tario Hydro's special presentation, "Plannin for Tomorrow", provided delegates with better understanding of the task involve in anticipating the vast electric power requirements of the province and the method being employed to meet them at the lowes possible cost.

After a brief introduction by J. M. Hambley general manager, the following panelists joir ed to sketch an informative and absorbin picture of Hydro today and the problems i must face tomorrow: I. K. Sitzer, deput general manager; Harold Smith, assistan general manager, engineering; John P. Dobsor chief load forecaster; and Douglas Gordor assistant general manager, marketing. The extensive use of slides facilitated the presentations.

Mr. Sitzer On Operations

Hydro's continuing efforts to keep down the cost of producing power was the recurring theme of Mr. Sitzer's presentation which covered a wide range of Commission operations. Good scheduling was among the many subjects he discussed. Because powe stations have differing efficiencies and the efficiency of a unit varies with every change in loading, scheduling of load is necessary every day, he explained, for maximum economy.

An operations research group is now work ing on the development of a suitable program so that a computer can handle scheduling automatically. In another effort to keep down operating costs, Hydro is making extensive use of remote control equipment for hydraulic



yenerating stations. Already, there are 18 inattended or semi-attended hydro-electric tations in the system.

The speaker also had some interesting omments to make on the weather. The differnce between a bright, sunny day and a dark ne, he said, at certain times of the year, an change the load by as much as 500,000 ilowatts.

This almost equals the December peak emand of Hamilton and Oakville combined. emperature in winter also has an important ffect. Two cold days in a row, say at 10 egrees above zero, can increase the load y 200,000 kilowatts — the approximate load Scarboro Township.

Two changes in the level of Lake Erie uring one day last December caused a ecline in production at Hydro's Niagara ants of some 650,000 kilowatts — the oppoximate requirements of the city of pronto in December, 1963.

The speaker lauded the co-operation of vdro-Quebec in the use of the Ottawa ver's major reservoirs, which lie within lebec. These make it possible for Ontario vdro to store water during the spring runoff d release it later in the year when energy mands are higher.

"This co-operation has saved us many pusands of dollars, particularly in the st year or two when water levels have been tremely low," he said.

Mr. Sitzer revealed a new cost-saving raying technique developed for use in rthern Ontario. Aerial spraying by helicopter 1 been restricted to periods when wind aditions were less than four miles an hour. It is summer, however, a thickened fluid veloped by Hydro's Research Division was

successfully tried for the first time under higher wind conditions to determine whether drift off the right-of-way could be avoided.

Use of the new technique reduced the time helicopters must remain on the ground waiting for suitable wind conditions, he said. "The savings from the use of this new type spray over 2,200 acres in Northwestern Region has been estimated at \$19,000."

Methods to improve quality and security of service outlined by Mr. Sitzer included interconnections with other utility systems, bare hand live line maintenance and improved system voltage control.

"The addition of a thermal generating plant in Western Ontario and the growth of load in Eastern Ontario will also make for operation with less variation in system voltage than at present. . . . In future, we may expect that the trend toward increased use of switched static capacitors for voltage control and efficient production of reactive volt-amperes will continue."

Mr. Smith On Future Needs

As Harold Smith sees it, meeting the growing power demands of the province is not a problem — the problem lies in developing generation at costs that will keep energy rates at low levels. He then outlined some of the alternatives which face the Commission in developing facilities for the needs of tomorrow.

He said that nuclear-electric plants probably have wider scope for long-range cost reductions than either hydraulic or conventional thermal plants.

"Although the experience to date with the Canadian heavy-water-moderated, natural uranium type of plant is encouraging, the lack of comprehensive operating and maintenance

experience means that this type of plant offers substantially higher risks both costwise and reliability-wise than the other alternatives."

He added, "Ontario Hydro is prepared to participate in the development of full-scale nuclear plants provided others will stand an appropriate share of the financial risk until adequate operating and maintenance experience has been obtained."

Looking farther ahead, Mr. Smith said future power needs may also be met by importing power from other provinces.

"It is well known that large power potentials exist in Quebec, Labrador, and Manitoba hydroelectric sites, and in Saskatchewan lignite fields . . . With the rapid development of long-distance transmission in recent years, the possibility of transmitting power from such locations does exist."

But Mr. Smith cautioned that "a great deal more analysis will be required to establish the true economic feasibility of such proposals."

"Nuclear fusion, fuel cells, and thermoelectric devices for major power production are probably even farther off in the future in terms of development of satisfactory systems from an economic standpoint," he said.

Mr. Smith predicted that the overall effect of lower capital costs and higher variable costs of new additions to the power system would probably result in a net increase in unit energy cost of about seven per cent by 1970,

Mr. Dobson On Forecasting

System demand will grow as much in the next 11 years as it has in the past 60, predicted Mr. John P. Dobson. He could see no let up in the expansion of Ontario during





Taking steps to convention activities are, from left: N. Oehm and Mayor Elmer Do Stayner PUC; Earl Griffin a James Milligan, Waterdown

the next 20 years, and said that power demand will grow at the approximate rate of 6.5 per cent a year.

Warning utilities of the danger of being over-conservative in making long range projections. Mr. Dobson agreed that at a certain stage some kind of saturation will set in causing a slowdown in growth rate. "But can you see this happening in Ontario in the next 20 years?" he asked.

In outlining forecasting procedures and factors which influence them, Mr. Dobson said that during the war, when industry was working to its utmost and residential usage was controlled, industrial sales amounted to 75 per cent of the total.

'Since then there has been a steady decline to the present level of 55 per cent and we have projected (this share) to continue to drop to 50 cent per cent by 1980. The main cause of this decline in the industrial share is the more rapid growth of residential sales, which has brought the residential share up from 16 per cent in 1946 to 29 per cent today. We have forecast this to continue growing slowly to reach 32 per cent by 1980."

Mr. Dobson also noted that although the number of farm customers is declining, the average use per farm is increasing rapidly.

Mr. Gordon On Marketing

A strong appeal for a more uniform approach to marketing on the part of the electrical utilities of the province was a highlight of Mr. Gordon's presentation. He used the important water heater field as an example and cited variations in rates, rental charges and sales practices as problems to be overcome in achieving a uniform approach to this market.

Conceding that the autonomous nature of the various facets of the Hydro organization was partly responsible for the lack of an effective common approach. Mr. Gordon said:

"There is always the tendency to say — 'this rule or guide is fine for the other utilities but my utility is different: we do it this way'. I suggest you take a good look at whether your utility is really different and take a positive rather than a negative approach on this question of whether we can achieve greater uniformity."

In the field of marketing planning, Mr. Gordon said it was necessary to strive for the following in order to ensure a successful future:

- (1) More uniformity in marketing procedures, particularly in sales programs and pricing policies.
- (2) Research into the characteristics of loads, their cost of supply and potential revenue to realize maximum value for money spent on sales promotion.
- (3) Research in improved applications of electricity, particularly in electric heating and commercial applications.
- (4) More and better training courses to equip Hydro marketing people to meet competition.

ON THE SOCIAL SIDE

A good convention program does not negle the social agenda which can help bring de gates together for a freer exchange of ide and discussion of mutual problems. By the yardstick, the 55th annual meeting was o of the best.

The socializing started Sunday evening wh curling at "The Terrace" attracted 36 rin of delegates and their wives, and as ma spectators.

Equally strenuous — to some minds least - was a rise-and-shine breakfast Tuday morning at eight o'clock. After-breakfa entertainment this year featured the Distr Four Players in "Sales Follies." And Bo Fleming, Toronto Township Hydro, was a even at breakfast time with his Hamlet.

Whenever the official program indicated break in scheduled sessions, informal grou of delegates could be seen examining intriguing display of refurbished historic electrical equipment, a public relations d play or the sales exhibit featuring elect heating.

Meanwhile, delegates' wives were enjoyi a more extensive program than ever before And they attended the convention in reco numbers.

On the first day of the convention, sor 250 ladies were guests at a tea given Mrs. W. Ross Strike at the Granite Club.

On Tuesday the ladies boarded buses front of the hotel immediately after the ris and-shine breakfast for a day on the tow First stop was CFTO television station, form the audience for the Iris Coop "Magazine" show. Lunch at the Ports



al calendar included drama with breakfast . . .



thirty-six rinks competed in pre-convention bonspiel . . .

Call found the ladies enjoying akuuakuu chicken, with bo-bo, crab roll and bora mikin the Bali Hai Room.

The afternoon was spent in a pursuit dear to any female heart — bargain-hunting at Honest Ed's. The ladies also browsed through the Pollock Art Gallery, part of the gallery-and-boutique Markham Village being created by Edward Mirvish behind his famous store.

All-in-all, the social side of the convention was probably enough in itself to make any tay-at-home commissioners and their wives econsider for next year.



exotic luncheon in the Ports of Call's Bali Hai Room ...



a stop at the Electrical Museum exhibit to ponder a turn-of-the-century electric washing machine . . .



afternoon tea for the ladies at the Granite Club





Safety awards were presented by A. W. H. Taber to P. G. Sanderson, left, Woodstock, and S. R. Walkinshaw, Orillia.

COMMITTEE REPORTS

As the links of a chain constitute its strength, so the effectiveness of an association depends to a large extent on the activity of its standing and special committees. Forces within forces, the OMEA committees play an important role in safeguarding and advancing Hydro activities in the province. The scope of their little-heralded activities, as reported to the convention, ran the gamut from complicated legal subjects to assessment of advertising and sales programs.

A resolution originating with the municipality of Burlington is a case in point. Originally presented at the District 5 annual meeting, and referred to the OMEA Board of Directors for study and report, the resolution sought the right of appeal through the Ontario Court of Appeal against charges, adjustments or apportionments made by Ontario Hydro. It was turned down without dissent on the recommendation of the association's Committee on Government Legislation.

Dr. Robert H. Hay, Kingston, chairman of the committee, termed the resolution "neither desirable, necessary or feasible. It may appear to be attractive on the grounds that we should all have the protection of appeal against what we may consider to be the arbitrary or unjust decisions of quasijudicial boards and commissions.

"Ontario Hydro, however, is not one of these," he said. "In essence it is a co-operative trust of the municipalities formed to provide power at cost in collective fashion. Adjustments and apportionments of the charges and costs are set out each year to each municipality in its 13th bill. The power of appeal is

thus the power to appeal the 13th bill."

Dr. Hay said that the resolution would make it impossible for Hydro to fulfill its financial obligations, to meet its commitments, or plan for the future with confidence. The committee had been further advised that the proposal was unworkable legally.

Industrial Relations

Howard M. Scheifele, Waterloo, chairman of the Industrial Relations Committee, cautioned that utilities were in danger of becoming community pace-setters for employee pay rates and benefits. He said that the newlyformed Canadian Union of Public Employees has proclaimed its intention to organize every public employee in Canada and the scale of rates and benefits paid to (members) is being used as a powerful illustration of what the union can attain.

"Utilities will face even more militant bargaining in the coming years . . . and greater criticism from other employers in our communities for the rates and benefits which we pay."

Mr. Scheifele said that inter-management meetings to discuss labor relations are proving highly effective. He urged wider application for a co-operative pooling of information and resources.

Advertising and Sales

Favorable comment was expressed on the results achieved by the Cascade 40 water heating program, reported R.S. Sheppard. Aylmer, chairman of the Advertising and Sales Committee. He said it had been decided to study the possibility of making the promotion flexible enough to encompass a Cascade 50 and Cascade 60 water heater. Among the projects which will be included in the 1964 advertising and sales program, he mentioned:

home modernization, electric heating, cor tractor sales training, water heating deals meetings, realtor meetings, builders' meeting: and summer cottage heating.

Electric Heating

The Electric Heating Association of Ontari made its maiden report to the OMEA-AME convention this year. EHA's participation i the program was prompted by the blanke membership taken out in EHA for all membe municipalities by the AMEU in 1963. Thi move increased EHA membership by some 300

"Our growth in membership has been mos gratifying," Ray Pfaff, St. Catharines, EH. president, said. "We started in 1959 with 2 members. In 1960 we had grown to 20 members, in 1961 to 431, and at the enof last year, our membership was 878. B now we have passed the 1,200 mark."

Mr. Pfaff discussed briefly the origins o EHA, and reported the progress made durin the past few years. The association's effort to unify and consolidate promotional efforts and to elevate equipment and installation standards promise to make 1964 even bette than the encouraging year just past, he said

The president also explained the com position of EHA's board of directors. Chosel from the membership-at-large, the board in cludes: three electric heating equipment manu facturers; two representatives each from Ontario Hydro, local utilities, and electrica contractors: one electrical distributor.

Pensions and Insurance

The continuing concern of the OMEA in the welfare of all employees of the utilities it represents manifests itself in a number of ways. Two of them were outlined in a report of the Pension and Insurance Committee.

Percy R. Locke, St. Thomas, committee



panel on rates includes, from left: J. A. Williamson, Harry Hyde, k Jannaway, D. B. Ireland and J. B. MacDonald.

nairman, told members that in the light of the present vigorous and still unsettled discussions on pensions by the provincial and adderal governments, the committee had to be well-informed. To this end, he said, a consulting actuary had been retained to allow government progress.

He said the reports of the actuary, Henry Devitt of Toronto, would help the comittee to ensure that employees were properly wered.

His committee was most anxious, he said, at all municipalities participating in the an now, and those who would join in the ture, accept Plan II, the supplementary verage. He noted that Ayr had joined Plan during 1963, and that Parkhill, which tered the plan last year, had signed for th parts.

Mr. Locke, a past president of the OMEA, id the plan had been formed in 1928 and d undergone a number of changes. Supplementary coverage was added in 1952 to offset d diminishing buying power of the dollar, the 168 municipalities participating, 111 if the supplementary benefits.

In a statistical summary, he said 7,809 ployees now were covered, and more than 3,000 per month was being issued to 712 isioners. Death claims paid to the end of 33 totalled \$4,596,340.

On the committee with Mr. Locke are Bert (son, Toronto, R. S. Reynolds, Chatham, G. R. Davis of Kingston.

FETY AWARDS

ays a highlight of the joint annual OMEA-U meetings, the presentation of safety awards tends to focus attention on the continuing priority which both associations accord to this vital aspect of utility operation.

This year's winner in the over 60,000 man-hour category was the Orillia Water, Light and Power Commission which had no compensable accidents in 106,088 man-hours of work in 1963. Manager S. R. Walkinshaw accepted the award on behalf of his utility.

Woodstock Public Utility Commission won the prized shield in the under 60,000 manhour class. Its accident-free record in 1963 was 59,955 man-hours. Manager P. G. Sanderson accepted the Woodstock award.

The presentations were made by A. W. H. Taber, Fort William, president of the Electrical Utilities Safety Association. In his report to the convention, Mr. Taber was pleased to note a growing number of utilities reporting accident statistics to the association. He revealed that all participating utilities recorded a total of 136 compensable accidents in more than 8,060,000 man-hours of work during 1963.

DISCUSSION ON RATES

As was expected the convention's panel discussion on rates produced pro and con opinions as to which is the best method for determining an equitable rate pattern for all classification of Hydro customers.

Getting the session underway, D. B. Ireland, Ontario Hydro's director of consumer service, emphasized two developments of a basic nature which had been brought about during the past nine years. Rate structures had (1) been tailored to the costs of supplying the service and (2) "end rates" had been made

available to the "good user" which were highly competitive and a real "sales tool" in any promotion of electric load. End rates are the charges levied for all energy consumed in excess of a specific minimum.

Mr. Ireland said that at the end of January, 1964, 240 municipalities (77 per cent of residential customers) had effective heating rates of one cent net per kilowatt-hour or less; 99 municipalities (14 per cent of residential customers) had effective heating rates between one cent and 1.1 cent net per kilowatt-hour.

"In other words, electric heating rates of 1.1 cent net or less per kilowatt-hour are available to 91 per cent of the municipal customers in the province."

The next speaker, Harry Hyde, Toronto, expounded the virtues of his "penny-power" and demand-energy customer classifications which he has outlined at several District meetings.

"For the first 40, 50, or 60 kilowatt-hours, I propose you charge four cents per kilowatt-hour and for the balance of consumption during the month, one cent per kilowatt-hour," said Mr. Hyde.

"Ultimately, this works out to just a fraction over one cent for the large, or more specifically, the all-electric residential customer."

Mr. Hyde also proposed that the distinction between industrial and commercial classifications be eliminated.

"We should adopt one general classification for customers other than residential and charge these customers on the basis of their peak demand and energy actually used," he declared. "Their average cost will depend on the amount they use." (continued)



Having contributed much to the advancement of Hydro in Ontario, these gentlemen are particularly interested in the Commission's efforts to preserve the electrical past. Shown discussing the fine collection of historic equipment on display at the convention are, left to right: Bill Catton, Brantford; E. V. Buchanan, London; and Alex Manson, Stratford.



Village of Belmont is a newcomer to the Hydro family of municipalities and its representatives received a special welcome at the convention from OMEA President Ted Dash. He is shown presenting an engraved gavel to R. J. Layfield, Belmont PUC chairman, who is accompanied by his commissioners Ken Godsoe and Nelson Clarke, reeve.



The panel member from Niagara Falls, J. A. Williamson, attempted to "shoot down" Mr. Hyde's theories by reminding delegates, "we adopted the basis of four categories of cost (customer cost, base system cost, capacity cost and energy cost) to establish our present block-energy rate which apportions these costs to all classes of customers."

Mr. Williamson felt there was no valid reason for changing this system, although conceding that rate studies should be continued.

Panel member J. B. MacDonald, Ontario Hydro's rate study engineer, said earlier that studies were underway on residential rate structures. "One of our aims is to get comparisons between the so-called all-gas residential rates and all-electric rates and we hope to have this information shortly," he said.

The session concluded with Mr. Williamson briefly outlining the benefits of metering (as compared to a flat rate) the water heater load and the superiority of this method from the standpoint of sales promotion.

Mr. Hyde had the last word by suggesting that the flat rate was more equitable and that lower rates were feasible because the energy consumed was "off peak".



LONG SERVICE AWARDS

A highlight of the convention was the special tribute paid by Ontario Hydro Chairman W. Ross Strike to 25 commissioners from utilities across the province whose combined service to Hydro and the people of the province totalled 405 years. Their individual service, shown in brackets, ranged from 15 to 32 years. Those receiving the presentations, front row, left to right, are: W. W. Beall, Renfrew, (15); Harry Mercer, Orono, (15); Mr. Strike; W. J. Baker, Grand Valley, (32); and E. H. Barrick, Port Colborne, (15).

Centre row, left to right: A. P. Maedel, Norwich, (16); Stewart O'Brien, Wyoming, (15); George Butcher, Simcoe, (15); Elmo Curtis,

London, (16); M. J. Brian, Windsor, (15); W. Binkley, Georgetown, (15); and E. E. Hawe Alliston, (16).

Back row, left to right: Cecil Swayz Welland, (16); J. S. Darling, Burk's Falls, (16 W. C. Pearson, Strathroy, (15); F. E. Einarson Rosseau, (18); Cathra Cassidy, Tweed, (15 and W. J. Smith, Port Colborne, (15).

Those not present: W. J. Burney, Kirkfield (16); W. M. Card, Newburgh, (15); Frank Ros borough, Rainy River, (15); Orville Hoope Ailso Craig, (15); Bruce Pollard, Weston, (15 J. A. Sabourin, Alexandria, (19); W. E. Tricke Willamsburg, (15); C. G. Walker, Newburgh (15). A posthumous award was made 1 George Simon, mayor and PUC chairma Alexandria, (17) who died January 31.

Canada's first nuclear-electric plant is pointing the way to competitive power from the atom

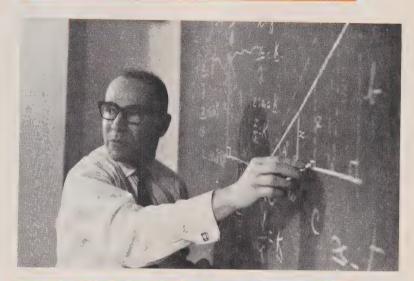
The price tag looked big when the project was first announced - \$33 million for what amounted to a classroom. But Nuclear Power Demonstration (NPD) plant at Rolphton, Ontario, is no ordinary place of learning. Since the reactor went critical two years ago, NPD has been guiding the way to power from the atom at competitive cost.

Beyond all expectations, this "nuclear classroom" is living up to its role as a pilot project to provide valuable operating, design and technical experience, states Lorne Mc-Connell, Ontario Hydro's nuclear operations engineer.

Built as a co-operative effort by Atomic Energy of Canada Limited, Ontario Hydro and the Canadian General Electric Company, NPD is not only proving to the world that power from the heavy water naturaluranium nuclear concept is technically feasible, but through detailed cost tracing, valuable insight is being gained in the realm of economies as they will apply to the larger nuclear plants of tomorrow. Technical, hardware, and control concepts arrived at or improved upon at NPD are already being incorporated in the 200,000-kilowatt Douglas Point Nuclear Station, scheduled to go into service next year.

"If NPD continues to perform as satisfactorily as it has up to now, by the end of next year it will have served its basic purpose of demonstration," said Mr. McConnell. "Discussions on the future of the prototype are now underway between Hydro, AECL and CGE."

With a staff of 72, NPD also makes a valuable contribution as a training ground for personnel who will operate tomorrow's nuclear stations. Several engineers, operators and maintainers



by Paul Chisholm

Putting the blackboard to use, Alan Mc-Carthy, administrative assistant, lectures to Hydro employees at Nuclear Training Centre.

A trainee, right, is instructed by NPD staffer in how to store spent fuel in deuterium oxide (heavy water).

are attached for training purposes, both in the plant and at the nearby Nuclear Training Centre. The centre was established early last year because no adequate curriculum was offered elsewhere in Canada and no pool of trained labor existed. The 60 Ontario Hydro employees presently undergoing an extensive training and study course at the centre receive on-the-job training at NPD, and when possible are assigned to routine shift work.

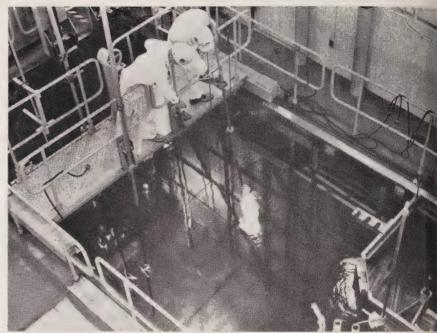
Two of the principal areas where facts are required from NPD are the overall economics of nuclear-power and plant reliability. For these reasons, NPD is run at maximum power for continuous, pre-determined demonstration periods of six weeks and four months. Improvement periods between these demonstrations permit investigation of any failures in operation and a variety of tests not possible during operation. They also make possible design and equipment modifications for better performance and safety, and improved job techniques.

Three demonstration runs have been held so far, and a fourth is underway. Capacity factor during the first three runs has ranged from 70 per cent to 100 per cent, and averaged 78 per cent. The target for the present four month run is 85 per cent.

"We are on the line and cranking out the kilowatt-hours reliably," states Mr. McConnell. "We confidently predict that nuclear station availability will be able to meet the design target of 80 per cent, and should exceed 85 per cent when the system requires it."

Main causes of lost production to date have been "hardware" problems rather than anything to do with nuclear features of the plant.

From NPD experience and cost estimates it is apparent that the greatest reduction in nuclear power





Training for tomorrow's nuclear stations is partly done on the job. Trainee, right, is made familiar with various NPD features.



Safety is stressed throughout training. Student, left, is assisted into protective plastic clothing. Trainees, below, handle heavy



sts will be realized by increasing the e of the units and the total capacity the plant. The Canadian-type reacr, with its pressure tube system, nds itself readily to increases in tput.

The step from 20,000-kilowatt NPD 200,000-kilowatt Douglas Point, alough large, is being taken with no ticipated major difficulties. The next p does not appear formidable. dro and AECL already have design rk underway for 500,000-kilowatt its, and negotiations are in progress building the first two units of this in Hydro's system. It is expected t the design and cost estimates will sufficiently advanced to justify a cision to proceed with the project bee the end of 1964.

Although appreciable cost uncertainty exists, Mr. McConnell believes that from experience to date, it is probable that power from large nuclear units will be fully competitive with that produced by conventional coal-burning units of similar size.

"Douglas Point will no doubt have the usual 'teething problems' of any complex station," said Mr. McConnell. "NPD reached full power within six months after construction was completed, but because of its size, Douglas Point will take somewhat longer. However, there is reasonable expectation that it will go on line with only a modest amount of difficulty, as a result of NPD experience."

NPD consumes one fuel bundle a day, and to date no fuel has failed.

Fuel bundles removed for inspection have been in excellent condition, particularly when taking into consideration the contamination of the heattransport system during a fuelling machine mishap in December, 1962. Safety devices installed for just such an emergency, functioned correctly.

Last October, NPD became the first pressurized system in the world to incorporate on-power fuelling from the control room. Several sophistications to the method have been introduced, and further development is underway to achieve fully routine operation.

Another area of vital information required from NPD is safety. Mr. McConnell is confident that NPD is as safe as any Hydro plant. Since the in-service date only one employee has had a lost time injury and this was of a routine industrial nature.

"The presence of radio activity in a nuclear plant is a 'potential hazard'." states Mr. McConnell. "However, the risk in nuclear stations, as evidenced by hundreds of operating years in various parts of the world, is low. This pattern of low risk is emerging at NPD, where no one has received an overexposure as defined by the strict limits established by the Atomic Energy Control Board.

"Personnel are given fundamental training about the nature of radioactivity and how to protect against it. There are strict safety procedures enforced at the plant and constant measurements are made.

"I believe that employees in nuclear stations will have considerably better safety records than employees in ordinary industrial plants.

"With an air conditioned control room and extremely clean station. overall working conditions are superior to most industrial plants," he said.

PUBLIC SPEAKING

AKEYT(

Education is more than a piling up of facts, educators agree; there is a need to develop leadership and character in the voung.

With this in mind, Ontario Hydro Chairman W. Ross Strike told the Ontario School Trustees' and Ratepayers' Association that the building of character and integrity was a responsibility shared by all citizens. Speaking at the annual banquet of the Association, in Toronto, he said that this was one reason why Ontario Hydro and the associated municipal electrical utilities were pleased to play a part in the provincewide public speaking contests.

He presented trophies and cash awards to the winners.

William Slinger, 13, of Guelph, won \$75 and a cup as first prize in the ele-



Lionel Desjardins

mentary school section. At the seco dary school level, Aldona Businska 17, of Toronto, was awarded \$100 f best impromptu address; and Lior Desjardins, 16, of Kirkland Lake to home \$100 for the best speech in t "prepared" category.

Lionel gave a forceful address ... evolution and the social sciences "Developments in Science," and E chose "An Outstanding Scienti Charles Darwin" as his topic.

Impromptu speech winner Aldo Businskas, again speaking extempt aneously at the banquet, said that t competition demonstrated the conce of many people and organizations the development of the young peop of the province. "You make us fe that we have achieved something -



Top three in impromptu category receive trophies from Hydro Chairman W. Ross Strike. From left, the winners are: Vivian Schulman, Cornwall, second; Aldona Businskas, Toronto, first; Stuart Hendin, Kingston, third.



Prepared speech winners admire large trophy Lionel Desjardins of Kirkland Lake took for his school. Flanking him are Maria Van Dyk, Woodbridge, second; and John Rennie, Tecumseh, third.

CONFIDENCE



Aldona Businskas

that we are worth thinking about," she said.

All three winners spoke at the banquet, held the day after the contest finals. They had previously been among some 40 finalists who were guests of Hydro on a day-long tour of Niagara and the Sir Adam Beck generating stations.

Contest officials estimated that 300,000 students started out in runoffs last fall in local and regional public speaking competitions. Many local utilities participate at this level.

Ontario Municipal Electric Association Districts present prizes in zone competitions across the province, and Ontario Hydro co-sponsors the finals. This was the sixth year of Hydro participation.



Bill Slinger



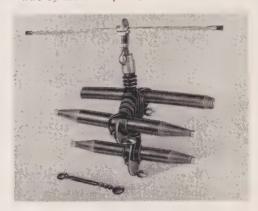
ungsters were tops among elementary school the province. From the left they are: iker, North Gower, second; Bill Slinger, first; and Marilyn McCaul, Toronto, third.



Guests of Ontario Hydro on a tour of Niagara, these finalists found a crocus near the Beck plants. They are: Karen Gee, Sydenham; Bruce Nelson, Kingston; Jane MacAdoo, Collins Bay; and Jane Cooper, Kemptville.



Oakville line under construction, top, illustrates reduced tree clearance tolerance. Conductors are suspended from carrying wire by Hendrix spacer, below.



OAKVILLE LINE SPARKS INTEREST

With the growing concern for the appearance of overhead distribution systems in recent years, considerable attention has been directed to the closer spacing of conductors. Key to this development is the use of specially-designed hardware in conjunction with insulated power lines.

A recent line construction project undertaken by Oakville PUC is of particular interest. Thought to be the first in Canada to employ such close spacing at so high a voltage, the three-phase, 27.6 k.v. Oakville installation brings conductors to within eight to ten inches of each other. Phase-to-phase spacing with conventional "open-wire" usually requires a minimum separation of four feet.

Extending some 1,800 feet, and providing an alternate source of supply between substations, the line is built along a residential section of road having many attractive trees.

Because of the insulation system used, conductor separation is greatly reduced, eliminating cross-arms, and a much smaller clearance from trees can be tolerated. These factors com-

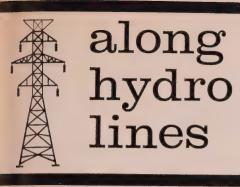
bine to eliminate or greatly reduce the extent of tree-trimming required.

Too, the conductors are suspended from a carrying wire, or "messenger" which affords some extra protection from falling limbs.

Oakville PUC hopes to extend the use of this system to other residential areas where tree-trimming operations have been expensive and a source of annoyance to customers.

Commenting on the procedure, R. E. Westwood, Ontario Hydro's senior distribution project engineer, said his department was very interested in the Oakville experiment. He noted that Ontario Hydro had carried out a similar project near Leamington using 15 k.v. insulation.

While observing that costs were higher than for standard open-wire construction, he felt that in special circumstances, where heavy tree cutting or trimming was involved, the additional cost might be justified in the light of the aesthetic improvements that would result. Reduced tree trimming costs were also a factor to consider.



xecutive Appointments

Two senior executive appointments were announced recently by Ontario Hydro. I. K. (Ken) Sitzer, assistant general manager-production and marketing, was named deputy general manager of Ontario Hydro. Douglas J. Gordon, executive director-marketing, has been appointed to a new position, assistant general manager-marketing.

Born in Trafalgar Township, Mr. Sitzer, 64, attended school at Milton and Guelph. After graduating from the University of Toronto, he worked with the Milton Hydro-Electric System and the Ridgetown Public Utilities Commission before joining Ontario Hydro in 1927. He will continue to exercise responsibility for

the Operations Division and the Regions.

Mr. Gordon, 43, is a native of Brockville and a graduate of Queen's University. He joined Hydro's Municipal Department in 1945 after serving in the Royal Canadian Navy during World War II. He was appointed director of consumer service in 1959 and two years later moved into the newly-created position of executive director-marketing. In his new position he will be responsible for Consumer Service, Sales, Advertising, Sales and Customer Training, and Load Forecasting.

ydro to Build \$110 Million Plant

Construction of a thermal-electric generating plant near Sarnia which will produce 1,000,000 kilowatts by 1969 has been announced by Ontario Hydro Chairman W. Ross Strike.

Estimated cost of the development is \$110 million and construction is scheduled to start late this year or early in 1965. During the building period, the work force will average about 650 men, reaching a peak of about 900.

Located on the St. Clair River, 14 miles south of Sarnia, the station will consist initially of two, 500,000kilowatt turbo-generators, although the 450-acre site

is large enough for future extension.

The decision to build on the St. Clair River site, which is about two miles south of Courtright, was made after several months of soil testing to determine whether foundation conditions were suitable for a thermal-electric station. "Although we own property near Metro Toronto for future thermal-electric plants, the rapid growth of power demands in Western Ontario established a prior need for a large installation there to achieve the most efficient operation of our system," Mr. Strike said.

Noting that Ontario Hydro and Atomic Energy of Canada Limited already have design work underway for a new nuclear station in the 1,000,000-kilowatt range, Mr. Strike said that coal-burning plants will continue to play an important role even with the advent of economic electricity from the atom.

"Nuclear plants are most economical when used as base load stations, operating round-the-clock with few shut downs. Coal-burning stations, by contrast, can be operated more flexibly to meet peak demands during shorter periods, because they can be started and shut down on relatively short notice," he said.

Mimico Appointments



Mimico Public Utilities Commission recently approved the position of general manager and appointed Secretary-Treasurer Bruce Michie to the position. Mr. Michie, who will be carrying out the dual role of both general manager and secretary-treasurer, is pictured above being congratulated by Chairman Herbert Bush, left. Other key promotions include the appointment of Donald Foreman, second from right, as Hydro superintendent and Eric Smitheram as water works superintendent.

Mr. Michie has been a member of the Mimico utility for 18 years. He began in 1946 as a cashier. He was appointed secretary-treasurer in 1953.

Mr. Foreman was with Richmond Hill Hydro for five years prior to joining Mimico PUC in 1943, as a lineman. He became foreman in 1949. Beginning in 1950 with the utility, Mr. Smitheram was a water works maintenance man until his appointment.

Residential Sales Manager

Donald A. Ramsay, formerly municipal service engineer, has been appointed manager of residential sales, succeeding Gordon M. McHenry, who has been appointed manager of Hydro's Western Region.

As manager of this department, Mr. Ramsay will be responsible for planning and developing residential sales programs for use by Hydro's regions and areas. He will also co-operate with the municipal utilities in this regard.

A graduate of Queen's University in electrical engineering, Mr. Ramsay joined Hydro's junior engineering training course in 1946. During the next 13 years, he held a number of positions including those of manager of Windsor and Forest rural offices. In 1959, he was appointed consumer service and sales engineer in Western Region and later moved to Toronto when he was named municipal service engineer, Consumer Service Division.

District 5 Curling Bonspiel



Howard Daniels, left, looks on as Ray Pfaff presents trophy to winning Brampton Hydro rink. From the left are: skip Roy Taylor, Lawson Smith, Harry Graham and Vern Breen.

Popularity is the biggest problem facing the District 5 OMEA-AMEU annual curling bonspiel. Held this year in St. Catharines because it had outgrown ice facilities at Niagara Falls, where the first two events were held, the bonspiel now threatens to overflow the new accommo-

Attendance at this year's event included 120 curlers comprising commissioners and utility personnel from District 5, equipment suppliers and Ontario Hydro rep-

Top award at the bonspiel is a handsome trophy which is presented by Ferranti-Packard in honor of the company's veteran salesman, Howard Daniels, now retired. It was won this year by a rink from Brampton Hydro skipped by Roy Taylor.

An Ontario Hydro rink skipped by George Gathercole, first vice-chairman, was a close runner-up.

Illuminated Street Markers



As the result of favorable comment from the citizens of Milton after exposure to two test signs. 126 illuminated street markers have been ordered for erection at all major intersections. Attractive as well as practical, the markers greatly facilitate street identification at night.

The vertical signs, such as the test installation shown, cost

between \$40 and \$45 each. Amber colored, they are two feet high and have the street names lettered in black. Illumination is provided by 69-watt lamps with a rated life of 6,000 hours.

Milton Hydro celebrates its 50th anniversary this year.

St. Lawrence Visitors

People who assumed that interest in Ontario Hydro Robert H. Saunders St. Lawrence Generating Static would cease with the end of construction continue be confounded by visitor statistics.

Records indicate that 125,849 persons took advan tage of the Commission's tour facilities at the § Lawrence during 1963. This figure represents an in crease of more than 11,000 over the previous year Once again, August was the busiest month with total of 43,245 visitors. This was only surpassed August, 1959, the year the project was completed, whe 51,471 visitors were recorded.

The Ripple Effect of Electric Heating

Supplying some 1.5 million electrically heated home United States utilities are old hands in this field b they borrowed a page from the Ontario industry in the realm of organization. Only recently has a group U.S. utilities got together to form Electric Heatin Association Inc., similar to the kind of organization formed here at the outset of electric heating promotio

Speaking at a recent press conference, Donald (Cook, president of the new American association, sa it was conservatively estimated that at least 19 million homes would be heated electrically by 1980. Shou this goal be reached, he said, the following gains wou accrue to associated industries in the next 17 years:

\$20 billion to electric utilities . . . \$3.8 billion electric heating manufacturers . . . \$4.2 billion electric utility apparatus makers . . . \$2.6 billion makers of insulation products . . . \$2.4 billion to co mining . . . \$1.2 billion to coal hauling and barge line This represents a total of \$34.2 billion.

Energy Production In March

Primary energy provided by Ontario Hydro in March totalled 3.51 billion kilowatt-hours, an increase of 8.1 per cent over the same month a year ago.

For the first three months of 1964, the total is 10.48 billion kilowatt-hours, up 7.5 per cent over the same period last year.

Adjusted for seasonal influences, primary energy demand in March was 3.32 billion kilowatt-hours, 2.3 per cent more than the previous month.

The seasonally adjusted total for March represents 39.88 billion kilowatt-hours at annual rates. This is 286.6 per cent of the energy demand in 1949.

Editor's note: Because the publishing date of Hydro News is being advanced, it will not be possible in the future to provide energy production figures for the previous month. Instead, there will be a two-month lag. April figures, for example, will appear in the June issue.

OFF THE WIRES

There may not be many areas wherein the Russian point of view coincides with our own but we do appear to see eye to eye when it comes to electricity and the role it seems destined to play in the future of world society.

Professor Nikolai Semenov, an outstanding Russian physical chemist who won the Nobel Prize in 1956, paints a rosy picture of the electrical future in the august Bulletin of the Atomic Scientists. By the end of this century, he forecasts, three new sources of energy will have been exploited, making it possible for the first time to control the earth's climate. The sources are thermo-nuclear energy, produced by controlling the reaction used in the hydrogen bomb; solar energy captured by photoelectric, thermo-electric and photochemical devices; and the underground heat of the magmatic lavers of the earth which lie about 18 miles beneath the surface.

But long before achieving production of enormous amounts of electricity from these sources, he believes, the peoples' way of life will be radically changed. He goes on to say:

"Agriculture and the food industry will be fully electrified and automatized. Irrigation of arid areas with the aid of plastic sheets for retaining water in soil, and soil warming in the north by artificial lighting in large hotbeds and hothouses will result in high yields of crops everywhere and often two crops a year . . . There will be electrical heating and air-conditioning everywhere."

The principal role of natural gas and oil, as the good professor sees it, lies in the manufacture of polymer materials such as plastics and textiles.

Even if Mr. Semenov is only half right, electrical developments over the next half century seem certain to dwarf anything we have vitnessed in the last 50 years. His views are just another indication of the challenge which lies ahead

in our industry and they leave no room for complacency. Our accomplishments to date will almost certainly bring condescending smiles to contemporary faces in the year 2014.

On a more mundane subject, and one well calculated to bring guffaws in skits depicting the harassed life of a small town Hydro manager. let us consider the plight of the cat up the utility pole. The latest episode in this tragi-comedy appears to have taken place in Ajax where a terrified tabby spent 36 hours at the top of a pole after eluding a dog. His predicament soon attracted a sympathetic audience in the neighborhood and it was only after individuals in the crowd had contacted everyone from the dog catcher to the fire department that someone thought of Hydro. The cat was down in a trice.

A nuisance, surely, but how often do felines go on pole-sitting marathons? And how long does it take to get them down? Quite apart from humanitarian considerations, the cost might be considered money well spent in good public relations. Certainly that group of Ajax neighbors will remember the lineman who came to their assistance after everyone else had turned them down.

A short item in the Barrie Examiner should go a long way towards restoring our faith in human nature. It has to do with the resignation of Miss Tena McLean, secretary-treasurer of the Alliston Public Utilities Commission, who felt obliged to leave the commission after 22 years service for reasons of health. In announcing her retirement, Miss McLean rejected with thanks a suggestion that she should get a salary increase for the remainder of her term, commensurate with the starting pay of her successor.

"I've always been satisfied with what the PUC has paid me," she replied, "if I got more, I'd feel I should be working harder, and that's something I'm not able to do."

In an age where the relationship between effort expended and remuneration received has been virtually discarded, Miss McLean's philosophy is indeed refreshing. She takes our best wishes with her in retirement.

Load building and good public relations are not confined to this side of the ocean if a service offered by a Parisian bureau is typical of French thinking. Kay Kritzwiser, in her Globe and Mail column reveals that, for a fee, anyone may have a building, monument or other development within the city brightly illuminated by simply applying to the office of the Prefect of the Seine, 48 hours in advance. Prices quoted include the entire Palace de la Concorde, \$12; Arc de Triomphe, \$15; La Tour Eiffel, \$40. For special events of short duration they might have something, at that.

We continue to be intrigued by the simplicity and common sense of the many money-saving ideas being submitted under the Commission's suggestion plan. Among the latest to come to our attention was one submitted by Peter Kendell of the Transport and Work Equipment Department.

He suggested that if separate fuel tanks were used to operate radial-arm derricks on line trucks, the Commission could claim a rebate on gasoline tax paid to the Ontario Government. There is a tax on gas used to operate motor vehicles on Ontario's roads and highways, but fuel used to operate auxiliary equipment is non-taxable. Fuel used for the latter purpose can now be measured.

The idea is expected to result in annual savings in the neighborhood of \$7,000 to Ontario Hydro. Peter is \$1,000 richer for his brainstorm.



This is one of 17 advertisements prepared for the municipal electrical utilities to assist in their local advertising programs. They feature a uniformity of layout designed to establish continuity and a "family" resemblance. Mats or stereos are available without cost from the Advertising and Marketing Services Department of Ontario Hydro.

Only electric ranges give you the safety of FLAMELESS COOKING without fumes or dirt... cooking speed without wasted heat. Fully automatic... precision control. Choose today from many makes and models.

your hydro

LIVE BETTER ELECTRICALLY

ONTARIO

HYDRO NEWS

MAY, 1964



There's a revolution in the chicken house. See page 8.



This mud-bucking jeep is one of the more prosaic methods by which Hydro tackles transportation problems in Ontario's tough and varied terrain. Some of the strange looking but efficient vehicles used to carry men and materials into remote areas are described in words and pictures starting on page 12.



Hydro-Quebec's Manicouagan power development is a story of statistical superlatives. The five dam powerhouse complex will generate approximately 6 million horsepower from two remote rivers. Electricity will be carried more than 500 miles to market at voltages of 700,000-735,000. Total cost: \$2 billion. Free lance writer Nick Nickels visited the project recently, and his report begins on page 18.

MAY, 1964

ONTARIO HYDRO NEWS

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THE COVER

These new-born chicks at Fisher Orchards hatchery in Burlington are among the 50 million which will be hatched in Ontario this year. Mass-production techniques have revolutionized the poultry industry and electricity is helping bring better eggs and fowl to the dinner table. The story begins on page eight.

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limited amounts of it are used by Hydro for various construction purposes. But until research and experiments now underway by Hydro and other agencies prove to the contrary, fly ash remains essentially a waste product.

Production of the grey, talcum-like ash from Hydro's Lakeview and Richard L. Hearn thermal-electric generating stations is as high as 2,000 cubic yards a day at peak periods. From these two Toronto area plants alone, sufficient fly ash is produced annually to cover a 100-acre property to a depth of three feet. And production will soar as thermal-electric generating capacity increases.

Disposing of lesser amounts of fly ash from the J. Clark Keith thermal station at Windsor presents no problem, with a reclamation area nearby. But disposal areas for any form of industrial waste are becoming increasingly scarce in the heavily built-up Toronto area, and competition for them is lively.

Charles Drew, Toronto Lakefront area manager, ranges about by helicopter in a 40-mile radius of Toronto to spot abandoned quarries, swamps and similar wasteland for dumping purposes. One of his finds, an old gravel pit, is presently being filled to a depth of 40 feet with fly ash. It will be topped with soil this spring, the area will be grassed and the township will have a new park.

Huge mechanical and electrical precipitators remove most of the ash particles given off by the thermal stations before combustion gases reach the smoke stacks. For example, at Lakeview G.S., such equipment is designed to remove 98 per cent of the fly ash. The smaller particles are trap-

ped on a series of electrically-charged plates, and when these are trapped, the dust falls into hoppers for disposal.

Most of Hydro's fly ash is removed by private contractors, in trucks, after it has been wetted down and covered with tarpaulins so that it will not be disturbed in transit. The contractors must also ensure that the ash is covered with soil when dumped, to avoid blowing.

That's how its done now. But research and experiments underway to find new industrial and commercial uses for fly ash could ultimately solve the disposal problem entirely. Meanwhile, there is no let-up in Hydro's efforts to further the use of fly ash in concrete construction, and as a soil stabilizer.

There is nothing particularly new about using fly ash as an ingredient of concrete. The Romans used quantities of similar volcanic ash in such monumental structures as the coliseum.

Fly ash is described by John Adams, supervising engineer of Hydro's Soils Research Department, as "a first cousin to soil cement because of its high silica content." Soil cement is a mixture of pulverized soil, cement and water used chiefly as a base course for roads, streets and airport paving.

Hydro's fly ash is replacing up to 30 per cent of the cement which would otherwise be used in concrete dams being built on the James Bay watershed. The mixture takes longer to cure, but is proving less likely to crack, and it eliminates the need for cooling massive pourings of concrete (cement generates heat when mixed with water). It was also used in the reactor building at Douglas Point nuclear station.

A huge block of the fly ash mixture was first tested by Hydro at water level

in the Otto Holden dam on the Ottawa River, which was completed in 1953. Extensive testing, analysis, and comparison with conventional concrete in the same structure was carried out during the following years.

"After an initial curing period of 28 days, the mixture proved to be of superior strength to that of the conventional concrete surrounding it," states Neil Mustard, of Hydro's Masonry Research Department.

Fly ash concrete was next used in massive beams installed in the depths of the Robert H. Saunders-St. Lawrence generating station where it reduced the heat problem which would have been encountered with a normal cement mix. Quantities of the fly ash mix were also used in the scroll cases at the same station to improve the workability of the fresh concrete and to minimize the temperature rise.

So encouraging have been the strength findings that fly ash was used extensively in the Otter Rapids and Little Long Rapids dams, and is being used in the Harmon and Kipling projects. Some 300,000 cubic yards of fly ash concrete were used at Otter Rapids and similar amounts will be used at the other projects.

The fly ash reduces the cement content by about one quarter. Its landed cost at these sites is in the neighbourhood of \$1.50 a barrel, against \$5 for cement.

It should be noted, however, that because of special equipment necessary for incorporating fly ash in concrete structures and the strict control which

> Contractor's trucks line up at huge Lakeview G.S. silos for loads of fly ash. Dumping places such as old quarries and gravel pits are hard to find in densely-populated Metro area.











Huge hoppers, top left, at R.L. Hearn station collect most ash particles before they enter stacks. Photo left, shows concrete mixing plant at Little Long with fly ash silo. Coarsegrained masonry block shown is of a variety of textures which can be achieved with fly ash content. Truck is unloading fly ash in abandoned gravel pit. Land will be covered with soil and seeded.

is required, savings are not this great and the process is still a long way from the ready mix, or do-it-yourself levels.

Small amounts of fly ash were also mixed in the grout used behind tunnel linings at Sir Adam Beck No. 2 station. The grout could be pumped hundreds of feet under high pressure without consolidation. With satisfactory results from this application, fly ash grout was used extensively for making intruded aggregate concrete in the dock at Lakeview G.S.

Fly ash is also being investigated by Hydro research people in mixtures without cement. Mixed into the soil, and with lime added, it has been used to construct a parking lot at the Hearn generating station and a storage yard at the Manby Service Centre. The latter has borne loads up to 17 tons during the past three years without cracking. Huge cable reels have been stored on the Manby lot without the slightest trace of indentation.

A drawback here is that the procedure takes considerably longer than for a hot-mix black topping, states Mr. Adams. But where construction time is not of prime importance, it could have application for secondary road construction.

"However, we need an actual strip of road for testing purposes in order to find out how its properties stand up to steady wear. The Department of Highways has expressed interest in this aspect.

"Suitable base course material is becoming increasingly scarce in southern Ontario. Combined with fly ash, second grade material could perhaps be raised to the necessary standard."

Other applications under investigation by Hydro and elsewhere are aimed at using fly ash for masonry blocks, and in tiles. It can be sintered (fused) for about two dollars a ton, and makes an excellent, lightweight aggregate for concrete. Although gravel costs only about 75 cents for a similar amount, the fly ast concrete offers certain structural economies. It permits the use of lighter grades of steel in high-rise buildings for instance, and it is said to have superior insulation qualities.

Fly ash has also been mixed with sludge from a sewage disposal plant in an experiment conducted by Metro Works Commission to produce usefut top cover from otherwise sterile soil. Other municipal authorities have expressed interest in using fly ash to break down the clay in excavated material from Toronto's new subway route, which is used for lakefront fill.

Hydro, then, is in the position of manufacturing a by-product with many potential uses, but with a great deal of over-production and no way of shutting down the assembly lines. But when the break-through comes, the black sheep of the thermal-electric process may take on new lustre.

Packaged sauna units such as this are gaining popularity for private family use. Electric heating unit topped with stones is visible at left.

THE FINNS CALLED IT

BUT THEY DIDN'T USE ELECTRICITY

omething over a thousand years ago, nameless but hardy Finn started his ountrymen on the road to an unsual 20th Century use of electricity. fter baking himself in a hot, dry oom, he jumped, unclad, into a snowank — and professed to feel better or his unorthodox antics.

Sauna is the name for this ritual not to be confused with the Turkish astom of par-boiling with steam) and e electrified version is inching its ay up in public favor in Canada. In e United States it's already some ort of a status symbol.

The exact origins of Sauna are lost the dry mists of Finnish physical ilture, but it is known to be more an ten centuries old, and did have ligious overtones in the early days. urkish steam baths probably date ick as far — certainly 500 years. The g difference between Sauna and the urkish bath is that the former emoys dry heat while the latter uses eam.

It's a long way from the supertural overtones of the first Saunas the posh Villa Roma motor court San Francisco, where Sauna is just other facet of the super-service. And orth Americans have made other

anges.

The Finnish method involves heat to 220 degrees and sometimes ore, flagellation with birch branches, en a leap, still in the altogether, into nearest snowbank. A bucket of d water is kept handy to douse the ther, and sometimes to make steam. As practised in Canadian baseents, golf clubs and health spas, the ch branches are dispensed with, aperature dips only to a relatively y 175 degrees or so, and a cold ower replaces the snow. Eliminating snowbank from the proceedings kes the whole thing more tolerable



to the participant and reduces the possibility of interference from peace offi-

At the Scarborough Golf and Country Club in Metropolitan Toronto, still another refinement has crept in with the addition of a modern shower nozzle above the heat source. The modern electric unit is heaped with stones to resemble the traditional version, and these can be doused with water by those who want steam. Similar clubs throughout the Metropolitan Toronto area also have free Sauna for the membership.

The wood-burning heat source, as employed by the perpetrators of the bath centuries ago, is still preferred by Finns in Canadian and American farm sections, and by some health club and "bath" firms in cities. The latter charge from \$1 to \$3, and some places will throw in a massage for a couple of dollars more.

In homes, private clubs, and motor hotels, however, electricity is the preferred heat source. Cost of the heating units start at about \$400 and they range in capacity from 4 kilowatts to 10 kilowatts. They can bring the room to 175 degrees in 10 to 15 minutes.

While most Finns usually build a separate bath house in the "back 40", presumably because of the proximity to snowbanks, North Americans are adding such chambers in or near their recreation rooms.

Installation of such a booth can cost anywhere from \$950 and up, with plenty of "up". Simpson's of

Toronto, for example, says you can go to \$2,500 for a packaged unit depending on trimmings and the size of the room.

A. M. Wynn, president of Finlandia Sauna of Toronto, says the most popular dimensions are six feet by eight feet with a seven foot ceiling. These ready-made units include slat floors, wood slat benches and wooden pillows. Do-it-yourself enthusiasts are cautioned against leaving exposed nails; they might get branded, albeit in an unseen

A typical installation will have a lining of plywood, three inches of insulation, an aluminum foil vapor barrier and an inner lining of redwood. Generally there is a guard fence around the heating unit, and most firms will throw in the wooden water bucket, timer and thermometer.

Enthusiasts say it leaves them relaxed and/or exhilarated; some claim Sauna will induce sleep, ease tension and cure hangovers. Less hardy souls have their reservations.

But therapeutic or not, it's gathering many followers in Ontario, although estimate of the number of installations range from "very few" to "several hundred" in the province.

Mr. Wynn said his firm and others were receiving inquiries from apartment builders, presumably with a view to augmenting the swimming-pool fringe benefit.

If so, the sprint from Sauna to water could still be an interesting sight just another way in which electricity is adding spice to modern living.

PANORAMA OF PROGRESS

by BILL RATTRAY

A rustic mosaic mural, one of the first in Canada, has been installed in Ontario Hydro's new Western Region office building, which will be officially opened at London later this year.

Occupying an entire 9 by 15-foot reception area wall, it portrays the march of progress and Hydro in Ontario, highlighting, in effect, the realization of the dream of the late Sir Adam Beck, the Commission's first chairman.

As it marks a comparatively new departure in its field, the Hydro mural is likely to command wide interest and attention in art circles and among the public at large.

This particular mosaic work differs from other murals in that the theme is expressed in a more earthy and lifelike dimension through the use of contrasting dull and glossy materials in different textures, shapes, sizes and thicknesses as well as in a wide color range.

The story back of its creation is an interesting "mosaic" in itself, linking three Hydro employees and an Austrian count and highlighting a lunch-hour suggestion and special New Year cards.

The project originated one day late in 1962, when Ken H. Candy, the Commission's architect, was in London in connection with plans for the new office building. He was having lunch with Don Ramsay, then consumer service engineer, Western Re-

gion. Don, who himself has a marked talent with paints and canvasses, suggested that a mural might be especially fitting in London, the home of Sir Adam Beck, who became known as "The Father of Hydro".

The suggestion took root and the next step was the selection of an artist. At this point, Mr. Candy recalled the highly-original New Year cards he had been receiving from a Hydro colleague in the person of H. D. (Det) Voss, the art and production supervisor in the Public Relations Division. He decided that Det was the man for the job.

Before coming to Canada in 1951, Mr. Voss attained wide prominence and acclaim as an artist in Holland. As a young man, he had spent a year studying to be an architect before deciding to embark upon a career which led him into many fields of art. The remarkable versatility reflected by his work is discussed in an illustrated biography by Johan Schwencke, a fellow countryman, who describes Mr. Voss as "a designer, xylographer, etcher, copper-engraver, illustrator, book-architect, calligrapher, artist-painter, sculptor, medaillist and silhouettist.'

Having received the blessing of the Commission, Det went to work on a small preliminary sketch which was followed by a four by two-and-a-half-foot water color — the pattern for the mural.

Count Alexander Von Svoboda, formerly of Vienna, next entered the scene. Vice-president and art direc-

tor of the Conn-Arts Studio in Toront for the past 13 years, the Count an his skilled staff undertook to produc the large-scale mosaic mural from th painting.

A slim, handsome young man – he's only 34 — Count Svoboda is graduate of the Art Academy in handsive Vienna. He came to Canada is 1950 where he became associated with the company headed by R. D. De Carli, who is widely known in the field of mosaic art. This union brough into being the Conn-Arts Studio where today, the wide range of exhibits from murals, paintings and sketches the sculpture work and other objets d'au bear testimony to the versatility an skill of the art director.

Under his direction, four skille artisans worked steadily for a mont interpreting the pattern painting i the form of mosaic work — an all form which probably dates back to before 3500 B.C. and reflects, in it evolution, Hellenic, Roman and Egyptian techniques.

When completed, the mural was separated into carefully identified segments and transported to its destination.

Embodied in the Hydro mural ar some 90,000 pieces of marble, glas and clay in 80 different color shade and in sizes ranging from a quarter inch square to random pieces severa inches long. These are skilfully combined, piece by piece, to portray sweeping overall interplay of bol and subtle emphases and pertiner symbols which, together, graphicall

Mural installed in Hydro's new Western Region office represents a departure in art form.







highlight Ontario's march of progress. In its broad sweep, the mural reveals highly imaginative interpretations of industry, commerce, transportation, mining, engineering, science and other fields of human enterprise and life, including the Ontario home and farm.

Dominating the background is a commanding head-and-shoulders study of Sir Adam Beck. While capturing something of his dynamism, the mural seems to portray a man who is quietly but proudly surveying a panorama of progress that is the realization of a dream he had for the province he loved.

His right hand rests upon an interpretation of the Commission's first major development at Niagara Falls—the Sir Adam Beck-Niagara G. S. No. 1. Water—one of the Province's great natural resources—finds expression in a stylized water fall back of Sir Adam's right shoulder. The mural also recognizes the increasingly important role being played by steam-generated power and reaches a colorful crescendo of symbolism in portraying the era of nuclear-electric power.

Primarily, this arresting mural stands as a tribute to the vision of a great crusader. And London seems the rightful setting. Adam Beck served as its mayor as well as its representative in the Ontario Legislature and the Beck artesian wells and the Queen Alexandra Sanatorium are enduring memorials to his community service.

Completed mural, top, is surveyed by Dr. E. V. Buchanan, a close associate of the late Sir Adam Beck. With him is Miss Ethel Blair of the Western Region staff. Group studying the mural in production, from left, is: Don Ramsay, H. D. Voss, K. H. Candy and Count Von Svoboda. Versatile artist Det Voss, far left, works on pattern for mural.

ALL ABOUT POULTRY

Mass production techniques have come to the chicken house and are revolutionizing the fast growing poultry business in Ontario.

by JACK BOITSON

Those two yellow eyes peeking out from under the bacon strips on your breakfast plate may not taste very different from the eggs grandfather ate — but their background has changed dramatically. And electricity has been partly responsible.

It took a lot of painstaking research and daring experimentation with breeding, feeding, and raising to prove that top quality eggs and meat could be volume-produced using an assembly line system similar to those in other industries.

The poultry industry has also proven that the way to a shopper's heart is through her budget. Money-conscious buyers responded enthusiastically to quality poultry products at prices that are more than competitive with similar protein foods.

But perhaps the real key to success has been specialization.

Years ago poultry was a sideline with most farmers; a profitable one albeit small. Flocks seldom exceeding 100 birds were allowed to roam at will on the farm. The eggs produced were usually bartered for merchandise at the nearby country store. The roosters and hens which failed to lay sufficient eggs (120 a year per hen was considered good), were killed and marketed.

This is not meant to imply that today's farmers have discontinued the practice of raising small flocks. Many of them still do. However, most of their production is for their own consumption.

Even within their own ranks, modern volume producers confine themselves to specialized operations so that the various paths by which the industry's products now reach the table are interesting to examine.

Broiler Industry

Poultry specialization received a healthy nudge with the birth of the broiler business. The "newly-hatched-chick" of the poultry industry, the broiler, is considered to be the number one sales sensation. Over half the chickens marketed today are broilers.

Two main factors made possible the low cost production which is behind the surging demand for broilers — breeding and nutrition. Once satisfied with birds that had attained the weight of three pounds on about 12 pounds of feed at 14 weeks of age, broiler producers crowed when the same weight per bird was reached on less than nine pounds of feed and in about 10 weeks time.

High energy grains such as wheat and corn were partly responsible. They replaced the more fibrous oats, barley and wheat by-products. Other feed such as soybean oatmeal provided a near-complete source of protein.

Improved genetics also contributed. Through controlled cross-breeding and in-breeding a "white" bird was developed which matured rapidly and had many desirable traits such as the ability to put on meat (or lay eggs.) This is the 'inbred-hybred White Leghorn' which has replaced the more common varieties of pure strain White Leghorns, Barred Rocks, Rhode Island Red and others.

Still more recently, producers began merchandising what they call a junior broiler that takes about seven weeks to rear, attaining a weight of just over two-and-a-half pounds. Cut up, they are just the right size for the TV frozen dinner trade.

A third factor behind the low cos broiler has been the introduction of mass-production techniques involving a great deal of mechanization. Many facets of the industry are involved here (hatching, brooding, egg laying processing and marketing) and electricity has contributed substantially to each operation.

Ontario Hydro entered the poultry field with a no-nonsense attitude a few years ago. John Moles, farm sales manager, says bluntly: "The poultry market is a market we should be in!"

And the 'in' begins with the hatchery where electrically-driven fans provide a constant, gently-moving stream of air (sometimes electrically heated) in the incubators. Some hatchers, resembling filing cabinets in an office, produce 10,000 chicks per bank every three weeks. Major hatcherymen in Ontario turn out several million chicks a year.

Brooding

Raising chicks to maturity either for meat or as replacement pullets for laying flocks is called brooding and this facet of the industry is particularly adaptable to electrical methods.

"Hydro is conducting research and cost studies to gain knowledge and practical experience in this area," says John Moles. "We want to know if electrical brooding is most effective with the hot water system, infra-red lamps supplemented with fan-forced



New-born chicks are removed from hatching trays at Fisher Orchards hatchery and their sex is determined before being placed in brooder houses. An important feature of brooder house at Willow Valley Farms (below), 'ypical of those designed by Hydro, is the outdoor feed storage tank.





Three examples of electrical brooding include infra red lamps combined with fan-forced electric heaters (above), a hot water system (middle), and heat lamps in cluster supported by unit heaters. Hydro studies are continuing.







heating units, or resistance-type heaters.

In the pre-mass-production era, brooding was largely carried out with oil-fired hot water systems or propane heater units. The poultry blitz took shape around 1947 and larger and larger brooder houses have been erected. Today they will accommodate up to 20 thousand birds. Some one million chicks are placed in brooder systems throughout the province every week.

And the buildings themselves have been improved with better insulation, controlled heating and ventilation.

As Mr. Moles points out, if the brooder house is cold, feed conversion drops and this becomes expensive since some 80 per cent of broiler costs are in the feed. Electric energy costs in brooding may vary slightly, but the average would be around two cents per chick.

Pullet Replacement

This is another specialty that has developed rapidly in the last few years. Several egg-producing plants have been established for this purpose in the province. Eggs are produced by breeder flocks to be hatched as replacement chicks for the brisk broiler trade, or as replacement chicks for

laying hens which eventually will produce eggs for consumer consumption.

Two kinds of egg-production systems are used; floor managed and caged. In the former birds are allowed to roam free in the building, nesting in specially-constructed quarters. In the cage system, one to 25 chickens are confined to a cage. The eggs roll out to a conveyor gathering system. Feeding and watering is also automatic as is heating and ventillation. Here again, electricity performs most of these tasks efficiently and economically.

Being less conventional, cagelaying houses are attracting most attention at the present, says John Moles: "Advertise that you are going to demonstrate cage-laying and farmers will come from hundreds of miles to learn more about it."

Egg producers usually buy replacement pullets that are ready to begin laying. These may have been raised by brooder operators or by farmers on contract. Other egg producers have installed separate buildings, preferring to raise their own layers.

Hens begin laying when they are approximately 20 to 22 weeks old. Their effective laying life span is about 14 months. The average hen will lay

around 250 eggs a year, better tha 100 per cent more than her ancestors

"An important factor in raisin layers (in fact, all types of chickens is lighting," says John. "You can hel control the development of the bird because they eat during daylight hour only, and by increasing lighted hour you induce flocks to eat more an therefore grow faster. Similarly, b placing laying hens into a controlle environment, a constant egg production may be maintained."

Egg production for consumption: also highly mechanized. The greated development of recent years is probably the cage system described earlie. This allows one person to tend up to 10,000 laying hens, 10 times more than was formerly possible.

Roasters and Capons

Compared to broilers, few roaster and capons are now raised in Ontarion The annual total may reach 1,000,00 birds. Their declining popularity is duchiefly to rearing costs which at about double that of broilers. This reflected, of course, in store prices.

Processing

The final step in the poultry merbusiness is processing. And the answehere is speed and efficiency. Ontario largest processing plant handles about

echanization is all-important to the efficient eration of processing plants. Production e (left) at Broadview Poultry Farms can ndle 1,000 broilers an hour.

125,000 birds per week. One located in Metropolitan Toronto, Broadview Poultry Farms, has a killing capacity of 1,000 birds an hour.

Broadview's manager Bill Atkinson says streamlining and mechanization are the essential ingredients for success in their business.

"We can start our kills first thing in the morning, have the poultry eviscerated, shipped and sold to housewives by early afternoon," says Bill. "You can't beat this kind of system for guaranteeing freshness and quality."

Live birds, trucked in from country growers, are hung on an overhead conveyor which is arranged so that the bird's head makes an electrical contact with sufficient voltage to stun t before the actual kill takes place.

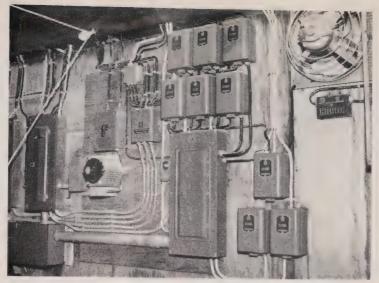
The conveyor moves the bled birds to hot water scalders and into a roughing machine where they are de-feathered. Then washing, eviscerating, inspection and so on, down the assembly-like ine to the grader. The government controls grading and rigidly enforces to standards.

Dr. L. B. Helwig, veterinarian in charge at the plant, is enthusiastic about the fast-growing and fascinating coultry industry. "The popularity of coultry on the homemaker's menu to-lay," he says, "is the result of a change in people's eating habits and because the price of poultry is such that it is most attractive when compared to other meats."

He credits electricity with making ne vast strides in mechanization and utomation possible, and helping to eep operating costs down.

In the processing plant's production ven the by-products are saved. Featers are converted to fertilizer while legs, heads and eviscera are used mink food.

Summing up, farm sales manager ohn Moles feels that the industry us out-distanced all others in the st few years insofar as improved ethods are concerned. To him, ickens represent kilowatt-hours and can only increase energy sales by lping the industry increase its efficiency.



Heart of a Hydro-designed brooder house is this 400-ampere service.



This vacuum lifter helps to increase egg production efficiency in washing and drying process. August Kaiser of Belleville demonstrates operation at his huge "egg factory".



Hatchery man Craig Hunter of Stroud, Ont. uses an electric de-beaker on new born chicks. De-beaking prevents excessive canibalism among the chicks in growing houses.

STATISTICS TELL THE STORY

Now representing about 15 per cent of the province's cash farm income, the Ontario poultry industry has something to crow about as these figures for 1963 suggest:

- Chicks hatched from egg production matings reached 20.2 million (Canadian total 53.3 million).
- Chicks hatched from broiler production matings totalled 49.8 million (Canadian total 112.8 million).
- Net egg production came to 170 million dozen, of which 162.7 million were for consumer consumption.
- Broiler turkey poults hatched totalled 3.3 million (Canadian total
 — 4.9 million).

HOW HYDRO GETS AROUND

Ontario Hydro's transportation system has come a long way from the early years when dog teams and birch bark canoes were deemed standard modes of bush travel for line patrol and survey purposes. And the horse and wagon, at one time routine line maintenance equipment, have long since been pushed aside by cars, trucks, snow and tracked vehicles, helicopters and motorized water craft which together run up an annual fuel bill in the neighborhood of three-quarters of a million dollars.

Ontario's terrain, the elements and the remoteness of many generating stations have required the Commission to come up with some weird-looking, but efficient types of vehicles for carrying men and materials. The swamp buggy, a dual purpose carrier with tractor-sized wheels, was Hydro's answer to tough-slugging, off-the-road transportation a decade ago. But the muskeg tractor has proved more versatile for many of Hydro's purposes and has virtually replaced the swamp buggy. There are 90 of these tracked vehicles in operation at the present time. Ideal for spraying operations and routine transportation, the larger types have been used extensively as cargo carriers in the construction of the extra-high-voltage line.

Winter presents problems which must be surmounted if Hydro is to remain mobile. Modern two-man motor toboggans have been used on the EHV line and elsewhere. Two snowmobiles, a half-track type of vehicle, also help keep Hydro mobile, as does a "scoot" — the strangest craft of all. Part plane, part boat and part toboggan, the scoot is driven by an aircraft propeller. At home on ice or water, this machine will go when everything else has been stymied.

Yet, there are places that must be reached by foot and the lowly snowshoe is considered standard equipment on many highway vehicles and helicopters during the blustery months.

During 1963, the ten Hydro helicopters, one of the largest non-military fleets in Canada, logged approximately 5,700 hours in the air on line patrol, spraying, survey work and transporting men and supplies into construction developments.

Back on earth, remote Mattagami River developments are served by train. The "Little Long Express", which runs 40 miles from Kapuskasing to the construction colony, is the only link with the outside world for over 1,500 inhabitants. In emergencies, a station wagon, mounted on flanged wheels can run on the same track. And a "bus line", comprised of 11 vehicles, carries men to work from Little Long to the construction sites at Harmon and Kipling generating stations.

Water craft play a vital role in Hydro operations, and these range from delicate dinghies to the sturdy 38 ton Niagara Queen, the icebreaker now in its second winter battling the flows on the Niagara River. Bulky barges and scows haul construction equipment and are also used for drilling and submarine cable operations, while smooth jet-propelled boats skim remote waters on survey and other work. Even outboards and a houseboat come into the picture, servicing island cottages in Georgian Bay.

But perhaps the people of the province are more familiar with the 1,600 bright red vehicles that represent Hydro on the highway and city streets. One of Canada's largest fleets, ranging from jeeps and cars to eight-ton trucks, it logged nearly 19 million miles last year.



Little Long Express, servicing Mattagam,



A muskeg tractor's at home in both swa

Hydro depends on both the old and the



Jet boat, carrying surveyors, skims the t





Snow and slush are no barriers to the snowmobile.



Sometimes it's easier to haul runners through mud.





Flanged wheeled station wagon can run on rails.



The rugged jeep is a common sight on construction.

In some places, snowshoes are still indispensable.



The versatile scoot, used on both ice and water.





by LOIS LANE

Electrical living is taking on a more literal meaning thanks to modern medical techniques. Some people are actually alive because of electricity.

Man, a complexity of electrochemical components, is operated, controlled and driven by body-generated electricity. Thus electrical and electronic instruments can measure the pace and change of the body's electrical discharges and in turn, physicians can use these measurements along with other tests to diagnose various ailments.

One of the latest developments in space-age medicine is the intensive care unit employed in hospitals. These are systems designed for the care of seriously ill patients, utilizing both specialized nursing skill and modern electrical equipment.

In one such unit, the patient is virtually wired for sound — or heart beats to be more precise. This is the cardiovascular intensive care unit. An electro-cardiogram monitor, when attached to all four limbs, records the electrical impulses sent out from the heart. This monitor is used on coronary patients who are likely to have another attack.

If the second coronary occurs, the nurse or physician is alerted immediately and quickly turns to the portable pacemaker for help. This device, externally used for heart block (stoppage) has two electrodes which are placed on the chest at each side of the heart. Electric current passed through the heart will in most cases, stimulate the muscles into beating. If the pacemaker is hooked up to the monitor, the physician can tell exactly how the patient is responding.

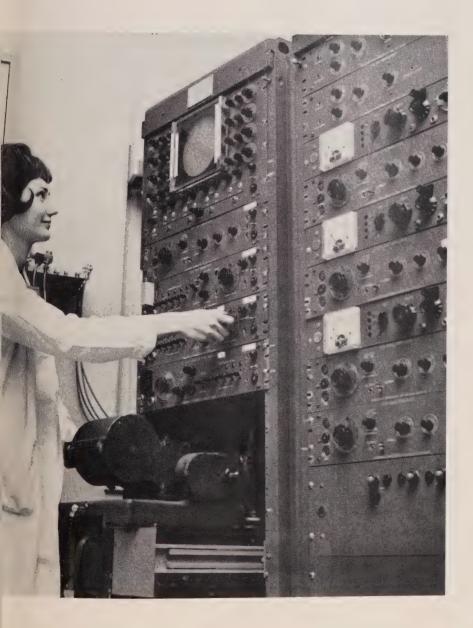
Some people constantly require a pacemaker in order to live. Electrodes were strapped to the chest in the first "personalized" or portable pacemakers but the power needed was so great that people with heart damage were fatigued carrying the batteries.

Today's pacemakers are about the size of a hockey puck and they are implanted in the body. The electrodes are attached directly to the heart muscles and power is supplied by a mercury battery. Persons so treated are able to carry on their regular routines with each heart beat stimulated electrically with clock-like precision. Controls on some units enable the wearer to alter his pulse rate in accordance with his activity.

A related device, the defibrillator, dispensing 2,500 volts, is used to correct heart muscles contracting at random. This equipment is used mainly in operating and recovery rooms. Electrodes held to the chest deliver a jolt of current to the heart which brings it to a standstill from which it can recover spontaneously or be triggered by a pacemaker.

One of the wonders of moder medicine, the image intensifier, whice peeks inside your heart, is depicted in the above sketch, while, right a Cambridge machine, capable of computing heart, brain and blood complexities is shown at Toronto Western Hospital

ELECTRICAL AIDS TO MODERN MEDICINE



The mysteries of the heart, the pumping station of the body, are further explored in cardiovascular investigational units. One device, resembling a computer, assembles facts in a matter of minutes that would otherwise take hours to collect. Information such as pulse rate, heart sounds, brain waves and even blood chemistry is collected and relayed via meters and oscilliscope.

Image intensifiers are also used in cardiovascular units. This device, costing approximately \$75,000, can peek inside a patient's heart and relay a picture, via closed circuit television monitors, to the physician. Thus doctors are able to make intensive studies without surgery. The image intensifier, working on the x-ray principle, has the advantage of being able to function in daylight.

Other inventions such as cardiocomputers and electrocardiograph machines ensure quicker and more accurate diagnosis in heart disease and provides physicians with a better understanding of this vital organ.

Even the hospital bed is not immune to electrical progress. In California, one hospital has bedside control panels which are equipped with an intercom to the nursing station, signal button, telephone, television control, electric alarm clock, and a push button to raise or lower the bed.

Beds also figure in recovery practices. To counteract post-operative immobility, a circle bed has been design-







Used in the recovery room at the Toronto Western Hospital, the defibrillator top, is used to correct heart muscles contracting at random. Current is passed through the heart via electrodes held by nurse. Pacemaker's components are pictured, lower, right, while the complete encapsulated unit with electrode and external control leads is shown, left. The instrument is implanted in patient's body. Photos are published through the courtesy of J. A. Hopps and O. Z. Roy, National Research Council.

ed. The patient is strapped into 1: bed, which revolves within a circul framework at the touch of a butte altering the person to an upright even upside-down position. These pol ture changes prevent fluids from set ing into the lungs which could car pneumonia.

The unconscious patient preser another problem. To combat loss circulation and possible bed sores. air mattress has been designed emple ing air tubes which are alternately flated and deflated with the use of electric motor. The nurse is spared t time and effort involved in constant moving the patient.

And electrical assistance has be extended to the supply departments modern hospitals. Cleaning and ster izing re-usable articles is a major pa of this department's function, and is being accomplished more quick and efficiently with the aid of vario electrical devices. An ordinary aut matic washing machine scours rubb gloves, while another device powde them. Electric needle cleaners, syring washers, sterilizing ovens and eve centrifuges to shake down thermome ers are becoming common-place equiment.

These are present hospital tecl niques. What of tomorrow?

Electrical automation of virtual everything except the nurses and do tors is envisioned. In the hospital the future, perhaps, each seriously patient will have a small private room with individual climate controls at th bedside. His "vital signs" (blood presure, temperature, pulse and respira tion) will be continuously monitore at a central control station and slee will be induced by a weak electric cur rent flowing through his brain.

Even now, work is progressing i the techniques of electro-narcosis c "electrical anaesthesia". Some medica authorities herald the development a potentially the most important con tribution to surgery since the first use of chloroform and ether a century o so ago.

And so the story goes. Modern me dicine, like so many other vital thea tres of endeavor, is benefitting exten sively from developments in the elec trical field. Electricity is improving medical and surgical techniques, add ing to the prospect of patient recover; and eliminating much of the drudger! associated with nursing.



At the age of 81, W. J. (Bill) Baker was recently elected to another term as a councillor of Grand Valley. Honored at the annual meeting of the OMEA-AMEU for 32 years Hydro service, he is shown examining historic generator on display.

Grand Valley Veteran

His alert blue eyes twinkling merrily, W. J. (Bill) Baker recalled how some 30 years ago he almost took Ontario Hydro for a new hat.

"I'd won it," he chuckled, "except the Hydro engineer backed off and wouldn't bet me at the last minute."

In reminiscing about some of the early events associated with electric service to his village of Grand Valley, a few miles west of Orangeville, Bill remembered how he and a few others proved to the Commission that a high energy demand was due to 14 rural customers who had been tied into the Grand Valley distribution system. Hydro engineers contended it was the village that was using this extra energy.

"After months of discussion the engineers allowed as how a meter would settle it," he said. "When the readings were checked they found we were right, the rural customers were using three times more energy than had been expected. I guess farmers were smart enough to see the advantages of electricity even in those days."

As Bill remembers it, the village received a rebate on the extra costs they had absorbed. "But what I really wanted was that hat," he smiled.

Bill Baker was singled out for recognition at the 55th joint annual meeting of the OMEA-AMEU convention, held recently in Toronto, for having served 32 years as a member of the committee of council administering the Hydro system in Grand Valley. Not a bad record for a youngster of 81 who was elected to another 2-year term as village councillor last December. "Since 1911 my life has been Grand Valley and that's

how I want it to be to the end," he said simply.

Bill operated a feed grinding mill until a few years ago and he was the first customer to sign for Hydro power when it was brought in. That was 1917. He's been one of Hydro's best customers and biggest boosters ever since.

"Some folks thought I was crazy to shut off the old steam puffer for the new-fangled invisible stuff that did a lot of work you couldn't see and often times couldn't rely on," he recalled. "After I signed up to run my mill with electricity, a few others joined up as well and we've been moving ahead ever since."

Bill agreed that this year's convention was among the better ones. "I've been to a few in my time," he said, "and I'm always impressed with the way Hydro people stick to business."

"Mr. Hydro" of Milverton



"Mr. Hydro" is a title not to be conferred lightly but in the case of Alvin C. Clemens, no other will do. Associated with Milverton Hydro since its inception almost 50 years ago, Mr. Clemens had the distinction of being a commissioner, manager and secretary-treasurer of the utility at the time of his retirement earlier this year. He is 88 years old. Hydro power came to Milverton,

north of Stratford, in 1916, but Mr. Clemens, a hard-ware merchant, was appointed to the newly-formed commission the previous year. He has been a member ever since.

In a recent interview with the London Free Press he recalled that one of his biggest jobs in the early years was to persuade people that electricity had a future in the field of lighting. Acetylene gas provided most of Milverton's lighting in the days prior to Hydro. The Milverton Sun, February 7, 1901, carried this item:

"The Acetylene Lighting Company of London has completed the local acetylene plant after three months of steady work. All the business section and quite a number of residences have been lighted. . . . Milverton can rightly boast of being the pioneer in this new system of town lighting the commencement of construction exceeding all others in Canada."

For many years Mr. Clemens was Hydro in Milverton — there being no other employees. Running the system from his store, he billed cutomers by writing out the amount owed in his own handwriting. As well as the office work he looked after system maintenance, using his own vehicle as a line truck in replacing street light bulbs or getting to the bottom of various power failures which were not uncommon in those days.

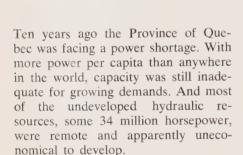
Mr. Clemens was appointed billing secretary of Milverton Hydro in 1935 and he became manager in 1951. He assumed the role of secretary in 1957 and was named secretary-treasurer in February, 1964.

With his retirement, occasioned by indifferent health, Hydro is losing a true pioneer.

QUEBEC TACKLES the MANICOUAGAN

As reported by Nick Nickels of Lakefield, Ontario, after a visit to the Manicouagan projects.

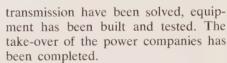
The present hydro-electric development program
of our neighbor to the east
is one of the world's largest and well worth
a brief visit through these pages



Faced in 1955 with finding cheap power quickly, in order to make available about 1.5 million horsepower by 1965, and three million more within another three years, Hydro-Quebec was forced to flex its muscles in earnest.

Almost simultaneously, the Commission started a survey of the Manicouagan-Outardes rivers; it challenged the electrical research laboratories of the world to find means of transmitting blocks of power over long distances; and commenced negotiations to knit 11 private power companies into a provincial network.

So far, success has smiled on each move. The power sites have been developed to the point where they will deliver the required energy on time. The research problems on high voltage



Our story concerns Hydro-Quebec's development of the Manicouagan-Outardes complex that will:

- Tame two remote rivers.
- Build five dams and powerhouses.
- Expand facilities at two existing private power plants.
- Create a total of some 6 million horsepower.
- Build a power line that will transmit blocks of power at 700/735 kv for more than 500 miles to markets.
- Cost \$2 billion.

Included in the completed complex will be three world "firsts;" the largest buttressed arch dam; the largest "hollow joint" gravity concrete dam; transmission of power at the highest voltage.

The current setting of this ponderous power play is centered at ten miles and 135 miles up the Manicouagan River from the St. Lawrence River's North Shore. The river carries some of the run off water on the Laurentian Plateau of New Quebec to the sea at Hauterive.



Travelling by same method as his ancestors who named river, this Montagnais Indian rodman talks with surchief over walkie-talkie. Lower photo shows chartered pumping dry cement into silos from where it is trucked to



For centuries the 25,000-squamile-watershed of the Manicoual and the paralleling Outardes rivers been "Le Pays des Notres," the La of our (Montagnais Indian) Peol Some Indians of the Bersimis Rese still hunt and trap beside the Macouagan, the Drinking Cup Riv which they named from the singuishape of one particular valley.

The Manicouagan is a mad, 2 mile river bearing flood marks many a canyon wall 45 feet above average level. From a mean wir flow of 8,400 cfs it thunders at 20 000 cfs in late spring, down the 1,1 foot drop in elevation to the sea.

The initial surveys and engineer studies of the Manicouagan-Outar complex as a whole continued for years. Twenty-seven power sites windicated, eight of them were contered and seven useful sites finchosen in consultation with the etronic computer.

Manic Five, 135 miles upstream the site of the largest project. It regulate the water for Manic Thi at Mileage 85, and at Manic Two, miles from the St. Lawrence Ri General view of Manic 5 site looking north. Valley in background will form 5 billion gallon reservoir. Overhead cableway carries concrete.



Closest to completion, Manic 2 development will deliver power next year. It features a concrete gravity dam of "hollow joint" construction, 2,300 feet long.



and double their capacities. The reservoirs of Manic 2 and Manic 3 will extend to the tailrace of each dam above.

On the 350-mile Outardes River, 15 miles west of the Manicouagan, earth-filled dams and powerhouses would be built at Mileage 45 and 58 north of the St. Lawrence. They would generate a total of 1,660,00 horse-power. But the whole Outardes part of the great plan could be delayed.

By the time of writing negotiations between Hydro Quebec and British Newfoundland Corporation may have been finalized. To purchase and transmit great blocks of power from the proposed development of Hamilton Falls, existing power lines would be xtended 250 mountainous miles northast of Manic 5 into Labrador. The Commission would use some of the ower in its provincial network but a lubstantial part would be exported.

Such arrangements could delay the evelopment of the Outardes River tes for the present and save an estinated \$100 million of the \$2 billion alculated cost of the completed com-lex. The Manicouagan sector is going

ahead as planned.

The auxiliary projects in advance of the building of Manic 5, starting in 1960, and Manic 2, in 1961, were almost as outstanding as the power developments themselves.

It began at the sea. A 750-foot wharf was built to accommodate bulk cement carrier ships and nine silos were erected to receive the dry cargoes that are pumped into them.

An all-weather highway was blasted 135 miles through the mountainous hunting grounds of the Montagnais to the site of Manic 5.

When concrete-pouring is scheduled at both dam sites at the same time a semi-trailer leaves the cement silos at Baie Comeau every 12 minutes round the clock. Other tankers transport some 3.5 million gallons of gasoline, diesel and fuel oil over the year.

A 5,500-foot runway was levelled off on a flat plateau five miles west of the Manic 5 camp for the urgent movement of important commodities and key personnel by air. A 161,000 volt transmission line was built from Hauterive and a microwave communications system installed.

Pre-fabricated metal camp, storehouses, shops and recreation buildings were assembled. Rock quarries and sand pits were located and overburden removed.

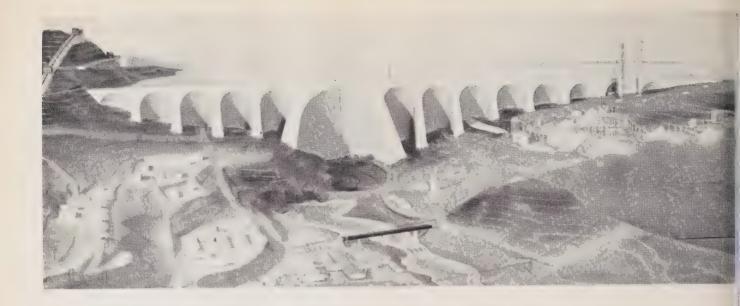
All the work proceeded with the unyielding deadline of the 150-day summers in mind. The 1964 season, already named the "season of the great push", will see some 6,000 men employed on both sites.

Manic 5

The first engineering job at Manic 5 was the diversion of the river. Two U-shaped tunnels, 2,100 and 2,200 feet long, were driven by a Swedish "ladder" drilling technique through the base of the mountain on the west bank.

In the de-watered gorge 400,000 yards of rock and alluvial gravel were removed. The concrete plug, 250 feet high and 300 feet long, was poured throughout the winter. The foundation of the main arch was ready.

The great buttressed, cone-shaped arch rose from its 520-foot wide base and was taken to its 450-foot mark by the fall of 1963. It will eventually rise to 750 feet. This spring the two 75-ton gates were closed and the



river started to fill a reservoir that will flood back 800 square miles of the Manicouagan River valley. By 1971 it is calculated that 5 billion gallons of impounded water will have created a 503 foot head.

Thirteen smaller adjoining arches on bases as small as 230 feet wide will rise to the common crest, levelling off to a width of 15 feet. The complete dam structure will require 2,800,000 cubic yards of concrete.

Concrete is poured from side-delivery trucks into three, 8-yard-capacity buckets suspended from a triple cableway. The installation was originally designed and used on the Dixence Dam construction job in Switzerland and was modified for the Manicouagan project. Three 375-foot steel towers and moving anchor trolleys on the inclined trackage ways high up on the west bank give the required lateral movement to the cables.

The powerhouse, housing eight Francis-type turbines, will be located 2,500 feet downstream, joined by one intake and two pressure tunnels. The separation will minimize vibrations in the dam from the powerhouse and allows its construction to take place as the dam rises.

Manic 5 is expected to go "on stream" in 1968 and will deliver 1,800,000 horsepower into the grid.

Manic 2

Started in 1961, the Manic 2 power site will deliver first energy in July, 1965. It consists of a concrete gravity dam 2,300 feet long and 300 feet high, with a spillway, log slide and intake

structures. It will be joined to the powerhouse immediately below it.

Of "hollow joint" construction previously used at several European sites, the dam reduces the concrete quantity by about 10 per cent, Hydro Quebec engineers estimate, and is cheaper in spite of the increase in the use of form work.

Concrete pouring in the spillway started late in 1962, the dam and powerhouse in August, 1963, and continued throughout the winter. A single stationary cable supports the cement buckets. They are filled from a tramway hopper car that travels on rails on the west bank and on the superstructure bridge above the powerhouse. Three large cranes handle the cement buckets and all materials from bridge level.

The powerhouse will contain eight Francis-type turbines, each generating 170,000 horsepower.

Transmission Lines

Hydro Quebec will score a definite world first in transmitting the output of its new complex over 700/735 kv lines to Montreal, 500 miles away.

Two of the three lines will cross the St. Lawrence River at Quebec and follow the south shore to Montreal. The third will continue to Montreal along the north shore.

The 735 kv lines have been tested in Sweden where a 400 kv line is operating and a few short test lines have been used in the 500/750 kv range. The Manicouagan-Outardes transmission lines are not looked on as a speculation as the installation will not be

Scale model of buttressed arch dam now taking shape at Manic 5 site dwarfs construction camp in foreground. Dam structure will require 2,800,000 cubic yards of concrete.

dependent on any technological breal through, Hydro Quebec officials feel.

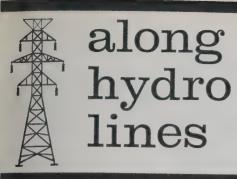
Communications

On such gigantic engineering projects as the Manicouagan-Outardo complex, communications are all in portant. The microwave link betwee the Commission's central constructic office at Baie Comeau, and Manic and Manic 5, carries teletype, dat voice information and television programs to the jobsites. The link has capacity of 240 circuits.

The data circuits transmit punche card information from the job site to a central tabulating machine at Bal Comeau. They make up the pay-rol control stores and calculate job cos for the accounting department. Reports get out fast to Montreal.

This information, together wit voice and teletype communication, tic in with the master microwave networ that links Montreal, Quebec, Bai Comeau, Sept Iles and Murdochville Each point is in instant touch with thothers.

Eventually, the system will carry ir structions from the control centre i Montreal where computers will determine the most efficient method (providing power to the networl depending on the conditions of the moment.





antagenet Joins Hydro Family

Thirty newly-installed fluorescent street lights were switched on for the first time Wednesday, April 1, to mark the official takeover of the Plantagenet distribution system from Ontario Hydro. At a special banquet in honor of the occasion, Patrick Kelly, chairman of the newly-formed local Hydro commission, proclaimed it "a red letter day in the village's history".

With approximately 250 customers, Plantagenet Hydro becomes the 356 member of the Hydro family of municipalities. Shown at the banquet, left to right, are Serge Lalonde, commissioner; K. D. Taylor, consumer service engineer, Eastern Region; Patrick Kelly and Laurent Perrier, commissioner.

ingerous Appliances Flood Ontario

Wholesalers who ignore Ontario's electrical safety regulations are flooding the province with substandard radios and other small electrical appliances.

George Milne, of Ontario Hydro's Electrical Inspection Department in Toronto, reports that thousands of unapproved appliances are now in use or available at retail outlets. The problem is general across the province.

Foreign radio and television sets make up the bulk of the appliances which are potentially dangerous, Mr. Milne said, but unapproved toasters, percolaters, and plug-in bath warmers are also being distributed.

Although all electrical goods displayed, advertised, sold or operated in Ontario must have a seal of approval from the Canadian Standards Association or Ontario Hydro, there are no federal regulations governing safety standards for imported appliances, he explained.

To assist Hydro's approvals group in coping with the flood of unapproved appliances, 160 inspectors who normally check wiring installations are devoting part of their time to checking retail outlets. Store owners are asked to remove unapproved appliances from their shelves, and their co-operation is sought in tracing suppliers. But Mr. Milne points out:

"The main obstacle in policing imported appliances is that we do not have access to the federally bonded warehouses where they are stored. Although our inspectors call on importers we can only inspect those appliances on display in show rooms. We are powerless to check other goods which may be in bonded warehouses and the wholesaler is not obliged to disclose them to us."

Canal Project Enlarged

Plans to deepen the Chippawa power canal at Niagara in conjunction with work now underway to clean and rehabilitate the 43-year-old waterway were announced recently by Ontario Hydro. Deepening of the canal will not affect the amount of water passing over Niagara Falls, which is regulated by an international treaty between Canada and the United States.

The additional water will be diverted from Hydro's Cascade plants (Ontario Power and Toronto Power, built in 1905 and 1906) via the enlarged canal and used in the more modern Beck generating stations downstream. Deepening of the canal will increase its capacity by 6,500 cubic feet a second, representing an 11 per cent increase in electrical output of the Beck plants.

The original plan to rehabilitate the Chippawa canal was made necessary by debris which has reduced the flow of water to the Beck plants.

The decision to proceed this year was made because of potential savings in completing both jobs simultaneously, and also to minimize losses in the production of electricity while Niagara River flows are below normal.

Preliminary estimates indicate the combined project will cost approximately \$11 million.

The canal is now scheduled to be closed early in May. It will be re-opened late this year, then closed again in 1965 to complete the project. The Beck plants will continue to operate during the shutdown.

After the canal deepening project is completed, the Ontario Power and Toronto Power plants will continue to operate when water is available for power production.

Hydro Officials To Tour Russia

A contingent of Canada's top businessmen, including Ontario Hydro's First Vice-Chairman George E. Gathercole and General Manager J. Mervyn Hambley began a two week, fact-finding tour of Russia, April 30.

"This trip will be an opportunity to examine and inquire into the advancements of the Russians in electrical power generation and distribution, and to view the progress they have made in higher education and in their standard of living," Mr. Gathercole stated. "We hope these tours will help establish a happier relationship between our two countries."

There will be 45 members in the group, representing most aspects of Canadian industry and public life. The

party will be conducted on a general tour of the Soviet Union and also will be split up into smaller sections,

depending on their interests.

On arrival in Moscow, the Canadians will be briefed by Konstatin Rudney, deputy chairman of the Soviet Council of Ministers and chairman of the state committee for scientific research co-ordination. As guests of the Soviet Government, the group will be unrestricted in their travels, except for military installations.

Mr. Gathercole and Mr. Hambley will tour England prior to the Russian trip, examining the Berkeley Nuclear Power Station and various industries manufactur-

ing electrical products.

AMEU President Receives Gavel



James W. Hammond, left, newly-elected president of the Association of Municipal Electrical Utilities and general manager of Hamilton Hydro, receives the gavel symbolic of presidential authority at a small dinner party given in his honor at Hamilton. Making the presentation is John McMechan, vice-chairman of Toronto Hydro and president of the Ontario Municipal Electric Association. John Torrance, centre, chief engineer of Etobicoke Hydro and past president of the AMEU, adds his congratulations.

In his remarks on accepting the gavel of office, Mr. Hammond expressed praise and appreciation for the work done by his predecessors in the association and by the OMEA. Prominent among the guests were Mayor Victor Copps, Hamilton; Ontario Hydro Chairman W. Ross Strike and C. R. Drynan, chairman of Hamilton Hydro.

World's Largest Nuclear Plant

The Central Electricity Generating Board of Britain has started to build the most powerful nuclear-electric station in the world. Estimated to cost \$300,000,000, the new plant will produce 1,180,000 kilowatts and is scheduled for operation in 1968-69. Located on the Isle of Anglesey, in Wales, the station will feature a number of innovations, such as 11-foot-thick, prestressed concrete pressure vessels and a computer which will supply up-to-the-minute data of the plant's operation.

The pressure vessels, almost 100 feet in diameter, will contain hot carbon dioxide gas which will transfer the heat from the uranium fuel rods to the steam heat exchangers.

Engineers will rely on the computer for station operation reports and receive important measurements on cathode ray tubes. These messages will appear in the form of written captions, much like those received on the family television screen.

New Line Will Serve Chapleau Area

Ontario Hydro has begun line clearing on a 55-mile stretch of right-of-way to supply power to Chapleau Township, about 145 miles northwest of Sudbury.

This is the first step in a project which will cost an estimated \$1,000,000 and include a new switching station at the Great Lakes Power Company generating station at Hollingsworth Falls and a transformer station at Chapleau. Scheduled for service by September 1, 1965, the 115,000-volt transmission line will provide adequate power to meet demands in the Chapleau area.

Under an agreement with the Great Lakes Power Company, this utility will supply Chapleau with power which will be replaced by Ontario Hydro through an existing interconnection with the Commission's George W. Rayner Generating Station on the Mississagi River. At present, the 984 customers of the Chapleau Township Hydro-Electric Commission are supplied by two 225-kilowatt hydraulic generators and a 200-kilowatt diesel generator owned by the Chapleau Electric Company, plus two 500-kilowatt diesel generators owned by Ontario Hydro and operated by the Chapleau company on behalf of the Commission.

In the seven-year period prior to 1963, peak demands in the area increased by 40 per cent to 1,120 kilowatts. During this period, energy consumption rose 50 per cent. Chapleau's population is 3,752.

MUNICIPAL BRIEFS

Clinton PUC will name its new transformer station in honor of commissioner William E. Perdue, now serving in his 30th year on the commission.

Windsor PUC is studying a proposal to continue its recently initiated institutional advertising program. Two of three articles about the commission prepared by an independent firm have already been published as advertisements. Designed to acquaint the public with the commission's operations, the articles cost the Commission \$225 each, including preparation and advertising costs. M. J. Brian, PUC chairman, says the program has been well received. Three more articles are under preparation for consideration by PUC members.

Belleville PUC accountant Ross Stiver has retired after 48 years of service. More than 50 PUC commissioners and employees attended a banquet in his honor. Speaking of the early days of electrical service more than half a century ago, Mr. Stiver recalled that during the influenza epidemic of 1919 he was called out of his accounting office to assist understaffed line crews in making emergency repairs. Mr. Stiver's 48 years of service were almost full-time. He noted that he had

been absent because of illness only 34 days during the entire time.

London's 13 acre Riverside Park has been officially named the V. A. McKillop Park, in honor of the former general manager of the London PUC. Mr. McKillop, who retired at the end of March, was presented with an illuminated scroll by commissioner Elmo Curtis at a reception and dinner in his honor. The scroll, presented "on behalf of the people of London", formally declared the new name of the park. Said Mr. McKillop: "How in the world can a man express appreciation for a gift like this? That sort of gift comes to very few people."

Seaforth PUC commissioner E. Dinsmore died in March while on vacation in Florida. The mayor of Seaforth, Mr. Dinsmore had served on the PUC for two years. He is succeeded by councillor Angus McLean, who was appointed mayor.

Milton's first all-electric apartment building is scheduled for completion this summer. Ground was broken in April for the 30-suite building. A single meter will serve the entire building and the tenant's monthly rental will cover the cost of electric energy.

Galt PUC commissioner A. T. Brown has been elected president of the Canadian Jewellers Association for 1964. Mr. Brown has been a member of the Galt commission for the past eight years.

Meterman John Tanner, who served 25 years with the Stamford PUC and one year with Niagara Falls HEC, was honored by AMEU district 5 meter section at a recent retirement party in Grimsby. He was presented with an am/fm radio.

ro On Ice



Just about every medium from sign boards to TV spots and from truck cards to window displays has been used by the municipal Hydro utilities of the province in their oad building efforts, but Port Credit PUC gets top marks for originality. The utility has rented space on he local arena's mobile equipment used for scraping and flooding the ice to present various messages.

And it's effective. Every eye in the arena, as hockey ans will attest, automatically follows the machine's progress between periods.

Shown surveying the unit, left to right, are William Junden, manager; E. C. Drew, chairman; and Marynn Dron of the utility office staff.



Champion Pie Bakers

The 16 finalists competing in the recent ninth annual cherry pie baking contest held in Vineland will have a warm reminder of the competition as they were presented with electric blankets on behalf of Ontario Hydro. The winners, from left to right are: Connie Jenner, of Blenheim, second; the 1964 Grand Champion, Barbara Tapp of Burlington; and Robert Heil of West Lorne, third. The contest, sponsored by the Red Cherry Institute, is open to all Canadian high school students and this year three boys were among the finalists.

Adequate Wiring in Quebec

A campaign has been started by Hydro Quebec to wipe out obsolete and inadequate wiring in some 650,000 homes in that province. And to help owners meet the expenses involved, the publicly-owned utility will arrange financing of electrical wiring improvements costing up to \$300 in town and \$500 in rural areas.

Hydro Quebec estimates that almost half of its customers have inadequate wiring, 300,000 being equipped with two-wire, 30-ampere services. The utility is aiming for minimum levels of 100 amperes with 20 circuits in dwellings of five rooms or more; 60 amperes with 10 circuits in dwellings of four rooms or less; and 200 amperes with a least 30 circuits for farms.

John T. Barnes Honored

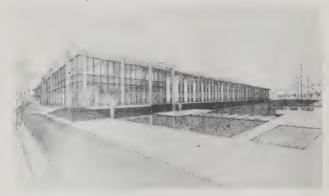
Sarnia Hydro-Electric Commission's new service center will be named for John T. Barnes, present vice-chairman of the utility, in recognition of his outstanding contribution to public service, a period which has spanned 29 years. Mr. Barnes has been an elected member of the Sarnia Commission since 1943 and has been chairman six times. The service center will be officially opened by W. Ross Strike, chairman of Ontario Hydro, June 8.

Bienniel Conference for Toronto

Top executives of three of the largest public power utilities in the Western world will gather in Toronto, May 23-31, to attend the Third Biennial Conference of

the Tennessee Valley Authority, the Central Electricity Generating Board of Great Britain and Ontario Hydro, with Hydro acting as host. The conference will include reviews and discussions of utility management and operation techniques. The last conference was held two years ago in Chattanooga, Tennessee.

North York Project



North York Hydro Commission plans to erect an office building on property adjacent to Ontario Hydro's Central Region Office, in Willowdale, at an estimated cost of \$1,350,000. Located on a 400 foot lot, the ultra-modern, two-storied structure will be constructed of reinforced concrete with precast concrete slab facing. The building, having 42,000 square feet of floor space, will be electrically heated and will house executive, engineering, accounting and some operational staff. It is expected that construction will begin in June for completion in the spring of 1965.

AMEU Summer Conference June 18-19

The most important technical gathering to be held in the province insofar as the municipal Hydro utilities are concerned — the Summer Conference of the AMEU — will take place this year, June 18 and 19, at Bigwin Inn, Lake of Bays.

With some of the sessions and speakers yet to be confirmed, the agenda will include a wide range of subjects of vital concern to utility management.

The papers and forums scheduled include: Legal Aspects of Utility Operations; Conversion of Older Homes to Electric Heating; Higher Distribution Voltage; Preventive Maintenance for Vehicles; Contracting Meter Verification; Use of AMEU Guides; Mitchell Maintenance System.

Other discussions will deal with welding loads, contract specifications, load promotion, sales competition, labor relations and safety legislation.

New Regional Manager

W. James Jackson, operations engineer, Niagara Region, will become regional manager, June 1. He succeeds J. R. McCullough who is retiring.

Born in Ingersoll, Mr. Jackson graduated from the University of Toronto with a master of science degree. He instructed at the university before joining Ontario Hydro in 1938 as a meter and relay engineer. In 1944 he became an engineering assistant at head office and in 1947 he was appointed regional operations engineer at Hamilton.

Mr. McCullough, the retiring manager, joined the Commission in 1926 and spent the early part of his career as an engineer with the Thunder Bay system (now the Northwestern Region). He spent more than 10 years as a meter and relay engineer in the Belleville area before being transferred to Niagara Falls as operations engineer.

He was appointed manager of the Niagara Region in 1955 and continued in that capacity when the West Central Region and Niagara Regions were amalga-

mated in 1961.

With a staff of 1,400, the Niagara Region supplies power to 65 municipal electrical utilities and serves 70,000 rural customers directly through 12 rural offices. Regional responsibilities also include the operation of Hydro's major generating stations in the Niagara Peninsula.

Consumer Service Appointment

H. J. Edwards has been named acting municipal service engineer with the Consumer Service Division, until the return of E. G. Bainbridge who is on special assignment with the Volta River Authority in Ghana. He will be responsible for the administration of the Municipal Service Department and will act in an advisory capacity to the regions in the matter of rates and other areas of mutual interest to Ontario Hydro and the associated municipal utilities. The post was formerly held by D. A. Ramsay, now manager of residential sales.

Brockville PUC Garage



The new garage and warehouse of the Brockville Public Utilities Commission is electrically heated and has some interesting features.

Operated as an off-peak system, heating in the 5,400square-foot building is by floor cable supplemented by two unit heaters. Mineral insulated cable of 64 kilowatt-capacity was laid two inches below the surface. The floor system is controlled in two sections — each with its own thermostat.

Heat retention in the floor is sufficient to permit the system to be turned off for two, one-and-one-half hour periods each day during peak periods without noticeable cool-off.

A peak cut-off control is incorporated in the system. The two supplementary blower-type unit heaters are used primarily for quick heat recovery when the large doors are opened for trucks.

OFF THE WIRES



One of the objectives of the people charged with centennial planning is to evoke participation by the greatest possible number of Canadians.

As John Fisher of the Centennial Commission puts it, "We would like to encourage grass roots participation. We feel that the administration in Ottawa could not and should not do all in preparation of the centennial celebrations."

And there are a few scattered signs that individuals as well as governments and corporations intend to take a hand. In Toronto, The Hustler Young Men's Bible Class has undertaken to raise a million dollars by 1967 to aid the alleviation of hunger throughout the world.

For more than a year, residents of Saskatoon have been giving up the normal discount allowed for early payment of electricity bills. By 1967, the city expects to have a million dollars from this source with which to mark the centenary in permanent fashion.

In St. Paul, Alberta, a community of about 3,000 northeast of Edmonton, the taxpayers have assessed themselves one dollar a month on their water bills. The money goes into the municipal centennial fund.

But these are exceptions. By and large, we sober-minded Canadians are a nation of spectators who will sit back and let governments spend our money without oo much concern, so long as here is no direct, individual involvement. Embarrassed by emoion and prone to cringe at the lightest outward sign of patriotsm, Canadians will take a bit of tirring up but the success of the elebration depends upon their nthusiasm.

centennial project reported to e receiving consideration at Pemroke is likely to stir up a spot f controversy. It involves the construction of a park and museum on the site of "the first plant in Canada to generate power for street lights." "Firsts" are sometimes difficult to pin down but we have heard similar claims from Ottawa, Toronto, and Peterborough.

One vehicle not mentioned as being employed by Hydro in our article "How Hydro Gets Around" is the bicycle. And while this humble conveyance plays no role in Commission operations, this was not always true. Reminiscing in his remarks to OMEA-AMEU delegates at the recent annual convention, Hydro Chairman W. Ross Strike recalled the earliest form of Hydro transportation.

"The first vehicle in our transport was the Detweiler bicycle," he said. The chairman was speaking of the velocipede propelled by one of the fathers of Hydro who took a two-wheeler on jaunts about the countryside convincing people of the merits of public power.

"At that time," Mr. Strike continued, "Premier Sir James Whitney rode a bicycle to Queen's Park . . . During my first six years of practising law I chased clients on a bicycle.

"... Quite recently, a first vice-chairman rode a bicycle to work. I can only suggest to the museum committee that perhaps we should get one of these bicycles for the displays."

All estimates of the Electric Heating Association will have to be revised upwards if present developments in the Toronto area establish a trend. The number of electrically-heated residences projected by the association fails to take into consideration the large and influential canine population.

At least two of the larger members of the bone and biscuit set—a German Shepherd and a Great Dane—are enjoying all the com-



forts of electric heating in their own fully-detached dwelling on a Brampton farm. And in Milton, a tiny terrier called Tinker is the possessor of an all-electric, partially glassed-in dog house.

Master of the two Brampton behemoths, a veterinarian, maintains that being out-of-doors is much healthier for his large dogs. They can come and go at their pleasure via a swinging door at the front of their 12 by 15 foot villa. Heat is provided by a three-kilowatt, convector type electric heater.

Tiny Tinker enjoys a panoramic view of the neighborhood from a picture window in his backyard apartment. He takes his comfort from the heat of a 150-watt lamp with a reflector. On extremely cold days a temperature of 60 degrees or more can be maintained with a 250-watt lamp.

What effect these canine cutups will have on the demand for power remains to be seen but it all tends to suggest that being in the dog house is not what it used to be—not if it's all-electric.

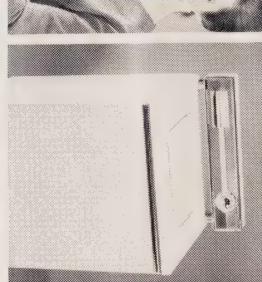
Scouts, Rovers and Cubs of the Georgetown District are wearing badges identifying them as members of the district. A prominent feature of the badge is an electrical flash representing the historical "first power generated for industry in North America which occurred here for the Barber's Mill in the 1800s."



FILL IT...



SET IT...



TBRA CALS ITY O 5 ON

FORGET IT...



Take the work and time out of washing with an automatic electric washer. Your laundry's washed, rinsed and ready for drying... automatically! Use it for dyeing and bleaching, too!

Choose yours today from many makes and models.

your hydro

LIVE BETTER ELECTRICALLY

This is one of 17 advertisements prepared for the municipal electrical utilities to assist in their local advertising programs. They feature a uniformity of layout designed to establish continuity and a "family" resemblance. Mats or stereos are available without cost from the Advertising and Marketing Services Department of Ontario Hydro.





This familiar scene will disappear in Metropolitan Toronto when computers take over control of the traffic lights. Already in action at some intersections, the world's most advanced automatic traffic control system makes the most of existing road facilities. Story begins on page 16.



Strapping on his equipment, this Hydro lineman gets on with the tough job of bringing electrical service to cottage customers. Ontario Hydro is now serving over 100,000 summer customers across the province who prefer to rough it in comfort. The story begins on page 13.

JUNE, 1964

ONTARIO HYDRO NEW

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THE COVER

As much at home in the fly-infested heart of the Ontario bushland as he is in academic surrounding Professor Norman Radforth is lending Hydro a hall with its muskeg problems. His irrepressible persolality has been captured for our cover by Star Photographer Ted Johnson. More of his work, all the story of muskeg, will be found on pages 2-5.

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HYDRO NEWS, VOL. 51, NO. 6

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Hydro Helps Plan Home Modernization

Hydro is establishing one-stop home modernization centres across the province to assist customers in planning home improvements.

On the theory that thought should precede action where home improvements are concerned, Hydro's latest promotion is aimed at assisting families to plan the construction and electrical features involved in their building and modernization projects before the first sawdust starts to fly.

Dovetailing nicely with the supplementary electric heating campaign launched last fall, the four-month home modernization program, which commenced May 30, makes use of the same 245 information centres across the province which were established for that occasion. Refitted, they are serving as distribution centres for planning guides which should prove invaluable to those considering home renovations. The centres are located in municipal utility offices, Hydro area and regional offices, contractor showrooms, building supply houses and other trade centres with adequate display facilities.

Like the supplementary electric heating and other promotions carried out in the last few years, the home modernization program is a joint effort by various segments of the electrical industry. Among the participants are municipal electrical utilities, appliance and building supply dealers, electrical contractors and Ontario Hydro.

The emphasis in home modernization is on added living space in attics, basements and home extensions, and the modernization of laundry rooms and kitchens. Planning kits are provided at each information centre so that visitors can select information pertinent to their individual requirements from the wide range of material on

information includes: Available planning guides with diagrams and layouts for each of the three featured areas of the home; lighting and wiring data; electric heating and insulation folders; and pamphlets on financing.

The unique planning guides include thought-provoking layouts of the various living areas. Individual planning sheets enable the customer to "blueprint" his requirements accurately and conveniently. Data contained in the



This effective Home Modernization display will be featured at 245 information centres across the province. The lady is examining helpful planning guide which is provided.

guides tells the customer how to proceed.

Advertising in connection with the home modernization program will be confined to those localities with information centres. It will include newspapers, billing stuffers, truck cards and "point-of-purchase" displays.

In explaining the emphasis being placed on developing all available "allies" in these industry-wide promotions, J. B. Brown, Ontario Hydro's sales promotion officer, stated "To be successful we must have regular contact with our customers, and I suggest that the best and easiest way of doing this is by developing 'allies' to work with us."

Most important among the 12 categories of "allies" listed by Mr. Brown are the approximate 25,000 employees in the "Hydro family". "I cannot stress too strongly," he said, "the need for complete employee familiarization with our plans in the home modernization field."

by PAUL CHISHOLM

MAS-KEG

. . . but it

spells trouble in any language where transportation and construction are concerned.

Undisturbed, it can present an alluring beauty from the air. Challenged — it will ooze, squelch and suck at men and vehicles in a manner likely to discourage the uninitiated.

The Chippawa Indians named the grassy bog "mas-keg" but Ontario Hydro crews who must work in the cantankerous muck at times use a richer vocabulary — the least colorful term being the derivation, "muskeg".

Covering some 50 per cent of Ontario south of the tree line, and a relic from the glacial age, muskeg is a mixture of water plus living and dead vegetation. Difficult to traverse and impossible to build upon, it is essentially a black, ill-smelling and insect-breeding peaty muck which offers a formidable challenge to Hydro's construction, line maintenance and forestry operations.

Composed of layers of plant remains, ranging in depth from a few inches to as much as 40 feet, muskeg can present an eye-catching beauty from above, as thousands of small



akes and pools reflect the sun in rilliant flashes amidst softly-tinted trips of land. At ground level it preents a soggy dreariness.

Muskeg terrain is found in several arts of the world and is variously nown as peat or bogland. It differs om swamps in that these do not row on peat. In Ireland, Scotland and he Soviet Union, the peaty part of tuskeg is scraped up, dried and used a fuel.

The bogs are a major deterrent to orthern development right across anada. Ontario's heaviest concentrators are in the Georgian Bay, Northestern, Northeastern and Eastern Resons. But they do swoop south as dicated by the famous Holland arshes north of Toronto which have the drained and farmed for the projection of vegetables.

Because muskeg varies in consisncy almost from yard to yard, it is fficult and time consuming to negote. About the only concession uskeg makes to man is it's grudging reement to freeze at surface level.

This enables easy movement of men d heavy equipment on construction

projects such as the EHV line, during winter, but spraying operations only get underway around the time of the annual thaw, and maintenance work knows no seasons.

Wherever possible, Hydro skirts its access roads and rights-of-way around the most treacherous areas of muskeg terrain. In other patches, corduroy patterns of logs, or brush cuttings, and occasionally rock fill, are thrown down to help support vehicles which traverse these thoroughfares. Bob Wykes, line and station construction manager, estimates that for every mile of Hydro's extra-high-voltage line there is an average of one-and-a-half miles of construction road dodging the worst muskeg, pond and rock features.

Muskeg adds considerably to construction costs. For transmission tower footings it must be removed entirely, and it is sometimes necessary to haul in rock or soil to replace it. Prior to the construction of Pinard transformer and switching station, 60 miles north of Cochrane, muskeg to a depth of four feet had to be removed.

Huge amounts were also removed at the sites of the Otter Rapids and Little Long hydro-electric stations in order to build the dams and clear the headponds. Clearing was also necessary for connecting roads in the area. These excavations revealed solid, non-porous glacial tailings underlying the muskeg which prevent the water from escaping.

Hydro's tracked vehicles give excellent service amidst the mire. However, getting these vehicles in and out of muskeg terrain frequently subjects them to costly breakdowns when

Muskeg came under field and classroom study at Hydro's unique course on articulated vehicles held last month at Nobel. Vehicles, lower left, resemble herd of elephants as they gather around a pond to fill tanks. Added weight simulates spraying conditions. Breaking through muskeg cover, vehicle, below, "wriggles" free of clutching terrain.



tracks are damaged or ruined by rocks or tree stumps.

"Counting in lost time as well as maintenance and replacement costs, these are by far the most expensive vehicles operated by Hydro," states Doug Campbell, work equipment engineer. "We have taken every possible step to pare these costs, but they are still high."

Hydro is currently evaluating a new type vehicle which could possibly replace the tracked vehicles in some areas. An articulated, hydraulically steered vehicle with man-height rubber tires, it is used extensively for skidding operations by the timber industry.

"Because of greater ground bearing pressure they do not negotiate bog as well as tracked vehicles," Mr. Campbell admits. "However, it is hoped that by providing better understanding of muskeg and its load bearing potential that these relatively maintenance-free vehicles can be adopted to wet areas as well as rocky terrain."

Assisting Hydro in its understanding of muskeg is Dr. Norman Radforth, of McMaster University, Hamilton, who is a leading authority on the subject. More than 30 drivers, forestry foremen and other representatives from all regions with heavy muskeg occurrence, last month attended a unique, week-long "muskeg school" at Hydro's EHV servicing facility at Nobel, north of Parry Sound.

Classroom lectures and field studies were included in the curriculum as well as further trials and familiarization with the new vehicle, nine of which have been ordered by Hydro for spraying and supply operations in Eastern and Georgian Bay regions. In these locations they have already proven themselves in rocky terrain.

An important feature of the rubbertired articulator is its hydraulic steering. Bogged in muskeg, this mechanism enables the vehicle to thrash about vigorously in the mire and wiggle clear.

However, it was emphasized during lectures that it is not intended that wheeled tractors will be a cure-all for spraying operations. Tracked vehicles will continue to play an important role. It will be a question of the right tool for the job.

Dr. Radforth is the author of an

internationally-accepted classification for muskeg, and an important application as far as Hydro is concerned is that it facilitates plotting of the most practicable routes through muskeg country. The system relates every type of muskeg — and there are dozens — to its appearance from the air, and analyzes and labels each type. Pure classifications seldom exist by themselves, but are found in combination. All are letter indexed.

An important clue to the character of the muskeg is provided by the living organic cover which can be classified into nine categories ranging from small trees and bushes, to grasses and mosses. The Parry Sound area was chosen for the school as all these categories occur there

"A definite co-relation exists between the surface vegetation and the subsurface organic material," states Dr. Radforth. "For a given type of surface cover, regardless of geographic location, the trained observer can predict with reasonable assurance the general type of the peaty material and its relative load bearing potential. He will know roughly what will be the



est type of vehicle, how many tons will be able to pull, and how much unishment the roadbed will take efore it collapses as the muskeg fibres reak."

And so, fresh from Dr. Radforth's assroom lectures, the Hydro "stuents" found themselves pushing their ay through the Nobel muskeg terin, talking an identifying language ompletely unknown to them only a w days previous. In fact, the Radorth-ese letter combinations makes it ossible for the first time to talk of uskeg in a common language.

heeled vehicle, opposite page, shows its vility in rocky terrain. Tracked machines, perior in muskeg, tend to break down in is kind of going. Concealed ice knolls ke those below can remain in muskeg until id-summer and bring wheeled vehicles to a ilt. Trained driver can spot them by surface ntours and clues provided by vegetation.





MR. MUSKEG

As much at ease before the blackboard in academic attire as he is when slogging through the bog in his customary dress of hip-waders, brilliant yellow rainwear and red slouch hat, Professor Norman Radforth is known throughout the world for his work on muskeg.

Nineteen years ago, when lecturing at the University of Toronto, he was approached by an engineer for a scientific explanation of muskeg. "I told him to give me a year, but actually I have never stopped learning about the subject."

Today, Dr. Radforth is chairman of the Department of Biology at Mc-Master University and head of the Organic and Associated Terrain Research Unit. Dr. Radforth describes McMaster-based organization, this which is supported by the National Research Council, as "an interdisciplinary study group combining the talents of civil and mechanical engineers, geologists, biologists and botanists." Its activities have attracted world-wide attention.

This year, for instance, students from as far afield as Finland and New Zealand have applied to join the group for post graduate studies of muskeg. And Dr. Radforth himself has lectured on muskeg in Europe and the Soviet Union, where his system of identification is known and made use of.

Dr. Radforth is convinced that the day is fast approaching when population pressures in southern Canada plus the world's need for new food sources will see a concerted effort made to roll back the country's muskeg frontiers.

"With drainage, the addition of lime nitrate and proper sowing, perhaps 60 to 70 per cent of Ontario's muskeg



area would become suitable for some form of crop," he says.

Small but lush market gardens in former muskeg areas around Huntsville and Cochrane lend support to this view, and so do beef farms in rehabilitated areas of Newfoundland. The Soviet Union is particularly advanced in utilizing muskeg terrain.

"But access remains the key to the conquest of muskeg," said Dr. Radforth. "Hydro's efforts to introduce the wheeled vehicle is therefore of historic significance to the whole of Canada. Hydro is also the first organization in the country to recognize the need to educate employees at operations level on the subject of muskeg."

FIFTY YEARS OF SERVICE TO ST. CATHARINES

The whole city was invited to this birthday party where progress was on display.

It was 50 years ago last April that the St. Catharines Public Utilities Commission was created and this is one anniversary that the people of the Garden City are not likely to forget.

The year-long program planned to commemorate this important milestone in civic progress got underway with a gala banquet attended by some 200 business and community leaders. In his congratulatory remarks as guest speaker, Ontario Hydro Chairman W. Ross Strike observed:

"Over the years we have been close partners in supplying electrical services to St. Catharines. Your history shows the success of that partnership and the efficiency of PUC operations. Today, one of the foremost municipal utilities in the province serves the Garden City."

The records bear out the chairman's remarks. By the end of 1914, the utility was serving 833 domestic customers whose average monthly consumption was five kilowatt-hours. It now serves more than 24,000 residential customers whose average monthly consumption is in excess of 480 kilowatt-hours.

During its 50-year history, the St. Catharines utility's peak demand increased from 783 kilowatts in 1914, to 98,382 kilowatts last year.

An open house to which every citizen was invited for a "behind-thescenes" tour of utility headquarters was another feature of the anniversary celebrations. This was held on three consecutive evenings.

On arrival, guests were greeted at the door by a staff member and introduced to a charming receptionist who proceeded to outline the tour's agenda. After a brief chat with PUC Manager Ray Pfaff, they were conducted through the various departments in the office-service centre complex.

Every staff member described his duties and demonstrated the modern equipment at his disposal. Further discussion was encouraged over coffee and doughnuts — a break subtly designed to suggest the efficiency of the Cascade 40 water heater. One of

these units served as a coffee maker, supplying an endless stream of the fragrant hot liquid to appreciative visitors.

Commenting on the approach adopted for the open house, Mr. Pfaff said: "We didn't attempt anything pretentious, we simply wanted to show the people what their utility was really like."

And the hundreds who came were impressed with the cards-on-the-table attitude assumed by the utility. One old-timer who has resided in the city since the turn of the century observed: "I've been a good paying customer of Hydro for as long as they've been here, but this is the first time I've gone past the service counter to see what's on the other side."

Other facets of the novel and wide-reaching anniversary celebrations included an essay contest for all Grade VII students in the city; a poster contest on the theme "Fifty Years of Service" in which all secondary school students were invited to participate; and an attractive, 24-page booklet containing information and photographs designed to tell the PUC story. The booklet was distributed to all customers.

The people of St. Catharines will also be invited to a "Light for Outdoor Living" demonstration and they are fast becoming familiar with the special "1914-1964" letterheads and truck decals designed for the anniversary.

As observed by Mr. Strike in his banquet address, St. Catharines PUC has always had "men of great capabilities" to direct its affairs. And Manager Ray Pfaff is typical of the "pacemaker" type of management referred to by the Hydro chairman. The job he has performed since assuming his present office in 1948 is recognized throughout the province. He was elected president of the Association of Municipal Electrical Utilities in 1959 and he is president of the Electric Heating Association.

Plans presently underway for an additional storey to the modern PUC headquarters, built in 1954, suggest

the dynamic nature of the utility. Mn Pfaff predicts that a 20 per cent in crease in load growth will be poster this year.

"Our new load is coming from al directions, "Mr. Pfaff explains. "We'r adding about 1,400 new domestic cus tomers this year; construction of twall-electric apartments is underway we're experiencing a husky industrial load increase and our commercial loa is also bouncing upwards."

Helping to push load growth t new heights is the amalgamation whic took place in 1961 when the new cit of St. Catharines was formed. It population leaped four-fold to 84,00 and the Merriton and Port Dalhousi Hydro systems were absorbed in the move.

Planning is one aspect of utility management stressed by Mr. Pfaff and he can point to any number of way in which provision for the future he paid off. A case in point is the PU building itself. When completed jute a decade ago it provided four time the previous floor space, but provision was made for future expansion foresight which is about to pay off.

Another example is the electron billing system. Inaugurated in 195 at a time when St. Catharines was or of only four municipal utilities in the province using the new accounting system, it enabled the staff to cope with the greatly increased number of cutomers brought in by amalgamation.

The present 13,000-volt distribution system was also built with an eye the future.

Among the many advanced ways doing things now being considered a drive-in system whereby custome could pay their bills without leavitheir cars.

As F. R. Kaupp, PUC chairman, I marked to visitors during the op house, "Our present success is t result of planning and energy in t past."

No doubt, when the St. Catharin utility celebrates its centennial, similar tribute will be paid to the preent commissioners and staff.











Versatile Cascade 40 water heater, top left, was pressed into service as coffee maker for hundreds who toured the premises during open house. Aerial basket, top right, like other equipment, was demonstrated by actual operators. Responsible for progress, the St. Catharines commission, centre, includes, left to right: J. S. Morrison; Mrs. Edward Craig, secretary; A. J. Bennet; F. R. Kaupp, chairman; Mayor Ivan Buchanan; R. D. Hunter and W. R. Pfaff, manager. Other open house photos show meter technician explaining testing procedure and an interested group of potential switchboard operators getting a few tips on procedure.



by JOAN ALLEN



Do you know how much light is falling on the page of Hydro News you're reading at this very moment in your office or home?

Chances are, unless the lighting system has been recently improved, here are only 15 or 20 footcandles of llumination.

And yet under ideal reading conditions, such as under a shade tree on bright, sunny day, you'd be comportable with between 300 and 700 ootcandles of well-diffused light. The tartling discrepancy between how nuch light most people use, and ideal ighting, points up the urgent need for a nvestigating and understanding the undamentals of proper lighting.

In the past, lighting was virtually mored as a vital component of building design. Even the modern offices, actories, stores and homes of today have poor or barely adequate ghting systems, partly because recombended illumination levels are still not yidely known, and partly because ghting is frequently dealt with as an fterthought.

Recent research has shown, howver, that proper lighting profoundly flects people's mental and physical ell-being. For example, with good ghting, employees show a greater esire to work and to concentrate on ssigned tasks. By reducing fatigue, bod lighting also reduces the effects fatigue, such as lack of interest, ervousness, and bad posture.

A number of contributions to the velopment of good lighting have en made during the past few years. One of the most important was an ght-year research program in lighting rried out by Dr. H. Richard Blackell and his staff at the University of ichigan. Based on the "Blackwell port", the Illuminating Engineering ciety has recommended an entirely w schedule of footcandle levels for wide variety of seeing tasks. In the terest of uniformity, the Lighting vision of the Canadian Electrical anufacturers Association declared elf, late in 1963, in favor of standardizing all lighting practices with the recommendations made by the Illuminating Engineering Society.

In Ontario, professional training in residential lighting was first made available in January, 1959 through the Academy of Lighting Arts. To date, more than 1,000 have graduated from the 12-week courses, co-sponsored by local electrical utilities and Ontario Hydro. In 1962, Ontario Hydro also introduced professional training in commercial and industrial lighting, and by the end of June, there will be over 500 graduates of these courses throughout the province.

To encourage good lighting in commercial establishments, Ontario Hydro's Lighting Service has been carrying out on-the-spot lighting "blitzes" for electrical utilities. Since March, 1961, the lighting requirements of commercial establishments have been surveyed in 14 of these lighting surveys in as many municipalities, and a large percentage of these businesses have carried out the recommendations.

These contributions to the development of proper lighting have been augmented over the past few years by an increasing number of magazine articles and advertisements promoting proper illumination.

"And as a result, people have become much more interested in lighting than they were a few years ago," says Frank Dean, of Toronto Hydro. Everybody — homeowners and business men — seem to have become aware of the importance and value of good lighting.

"Nevertheless, very few people understand exactly what good lighting is," he says.

His words bear weight. As immediate past president of the Illuminating Engineering Society, Mr. Dean is only the second Canadian to head that organization.

The goal in lighting must be to allow people to see comfortably and efficiently without undue distraction. It follows, then, that an adequate level of illumination for efficient performance of visual tasks is necessary, and that the quality of lighting should help to maintain a comfortable and pleasing environment.

Before discussing how much light is needed for proper illumination, it is important to recognize what constitutes a good quality of illumination. Such factors as brightness ratios, reflectance values of room surfaces, direct glare and reflected glare, must be considered.

Although the eye adjusts readily to changes in the quantity of light, it cannot adjust to excessive brightness differences which exist simultaneously in various parts of the visual field. A familiar example is the discomfort caused by bright automobile headlights at night. The same lights are barely noticeable in broad daylight, because the difference in brightness between the headlights and their surroundings is much less.

Low brightness ratios can be provided over the entire visual field in a room by limiting the brightness of a lighting system, and by building up the brightness of other interior surfaces, such as the ceiling, walls, floor, and work surfaces.

To achieve appropriate brightness ratios, suitable reflectance values must be selected for room surfaces. Some of the light falling on a surface or object is absorbed, and the rest is reflected. The amount reflected is expressed as a percentage and is called the reflectance value. The lighter a color, the higher its reflectance value. The amount of light in certain areas of a room can often be doubled merely by repainting or by changing the color.

Ceilings should have as high reflectance values as possible, about 70 to 90 per cent, to provide good illumination efficiency and to bring the ceiling brightness as close as possible to the brightness of the light source. For walls, the reflectance value should be from 40 to 60 per cent, and for floors from 30 to 50 per cent.

Glare is a brightness condition which causes distraction, discomfort,



Over the past 15 years, lighting levels recommended for offices schools and homes have more than doubled Yet most people read by the same amount of light deemed adequate 40 years ago. Why is proper illumination so important and what, exactly, constitutes good lighting?



Imaginative lighting creates intriguing effect in Yorkdale Shopping Centre, above and right.
In photo, far right, two members of Hydro's lighting service recommend lighting improvements to barber shop owner in Collingwood.





or a reduction in visibility. Two comnon sources of direct glare are winlows, which should be suitably shaded to screen out direct or indirect sunight, and lighting fixtures. To avoid direct glare from lighting fixtures, attention must be paid to their locaion, shielding, and brightness in relation to their surroundings.

Reflected glare is caused by the orightness of the reflected image of light source. Many visual tasks have surface characteristics which are parially glossy. If light is evenly disributed and diffused in all parts of the room, there will be no shadows for glare from task sources.

How Much Light?

Levels of illumination are interbreted in footcandles, which can be neasured with a light meter.

Conditions which the layman may nterpret as "too much light," howver, are really the result of too much rightness or too much glare. That is why the 300 to 700 footcandles of light measured under a shade tree on a bright, sunny day is not too much light, but ideal for reading.

The minimum illumination level recommended by the Illuminating Engineering Society for general office and factory lighting is 100 to 150 footcandles. The optimum range would be 300 to 700 footcandles.

Natural daylight is virtually useless in any appraisal of lighting needs. A home lighting system is most often used after dark and the effect of natural light in any room varies with the time of day, weather, obstacles such as trees and draperies, and other factors.

One sees equally well under the same illumination value from incandescent as from fluorescent lighting of comparable diffusion and directional quality. Either type may be satisfactorily used, therefore, if all other aspects are properly considered. But a fluorescent lighting system is the most practical way to provide a recommended lighting level without

creating discomfort from glare and heat. Fluorescent lamps, with approximately three times the efficiency of incandescent lamps, produce light at a lower overall cost in most applications, despite higher initial costs.

Lighting is one of five design factors to be taken into consideration during the planning of a new building or the refurbishing of an older one. These factors — spatial, thermal, visual, sonic and aesthetic — must be considered both as separate and as interrelated elements. The lighting system must therefore belong to the building, and be a part of the total design, rather than an afterthought.

Designers of today's lighting systems are highly knowledgeable in both the art and the science of lighting. At their disposal is the biggest selection in the history of lighting of artistically and scientifically designed light sources, new standards of efficiency and quality, and methods of installation and integration with the building structure.









Good lighting aids concentration in Unionville school, top left, and enhances appearance of church near North Bay, top right. Exterior lighting extends outdoor living time, bottom left, and helps prevent parking lot vandalism, bottom right.

Garden lighting demonstration, right, was sponsored by Residence Lighting Forum of Toronto for a horticultural society. The forum also planned lighting of James Gardens, below, as a public display.





WHEN SHADOWS FALL ON GARDEN WALLS

Although garden lighting has interested horticultural societies and the electrical industry for a number of years, little effort was made in Canada until recently to demonstrate the beauty and utility of outdoor decorative lighting to the general public.

For this reason, the Residence Lighting Forum of Toronto planned and carried out the illumination of James Gardens, in Etobicoke, during September, 1963, to produce what is believed to be the first public garden lighting display in Canada.

Part of the Metropolitan Toronto Parks system, James Gardens combines the natural beauty of a hillside location with the formal elegance of well manicured lawns and floral arrangements.

But its beauty disappears with the setting sun.

For two weeks, however, nearly 10,000 Metro Toronto residents took the opportunity to see an illuminated James Gardens after dark. Shrubbery trees, and flower beds took on a new look of beauty; underwater floodlightelent an air of fantasy to pools and streams; and the whole area was transformed into a fairyland of color.

By talking to forum members or duty each evening, visitors learned how to adapt a number of the lighting techniques to their own gardens and back yards. Many expressed surprise at the relative simplicity of the wiring installation, both above and below ground and were pleased to discover tha similar installations, on a smaller scale were well within their budgets. Other commented on the wide variety o portable lighting fixtures on the marke today.

In addition to accentuating the various features of a garden after dark illumination helps to discourage prowlers. And a path of light along a sidewalk, near the driveway or a steps is a valuable safety measure.

Response to the pioneer lighting project at James Gardens prompted the Residence Lighting Forum of Toronto to plan a second garden lighting demonstration, this June, at the Alexander Muir Memorial Gardens of Toronto's Yonge Street.

Another project designed to encour age garden lighting was launched in March of this year by the Electric Clul of London. A garden lighting displaying the city's Modern Living Show an nounced a contest for homeowners in the area, and also demonstrated a number of effective lighting techniques Winners will be announced in June.

And in St. Catharines, the Publi Utilities Commission is planning "Light for Outdoor Living" demonstration in conjunction with its 50th anni versary celebrations.

In modern suburbs, the landscapin trend is to an integrated house and garden scheme. As the public become aware of the decorative possibilitie offered by outdoor lighting, the illumination of gardens for pleasure and safety should receive more and mor attention.

More and more Ontario families

are "roughing it" the easy way—in summer cottages

where oil lamps and wood stoves

have given way to electricity.

KILOWATTS AND COTTAGES

Now that June is here, weekend homesteaders are hitting the asphalt trail by the thousands. And with some 200,000 lakes to choose from, their destination is often a summer cottage.

But it wasn't always so. In fact, the real boom didn't start until well after World War II. The number of cottages in Ontario increased by little more than 5,000 from 1941 to 1948 while in the following five-year period an estimated 60,000 were erected. Since then, construction has averaged 5,000 annually with no sign of a let-up

Vast as the land area of the province is, suitable waterfront sites within 100 miles of the major urban centres are becoming scarce. One solution presently being exploited by at least one developer is the planned cottage subdivision. Southview Estates, on Sturgeon Lake north of Lindsay, consists of 146 properties to be completed in two stages. The first stage, with 66 lots in three lines back from the lake, has been completed.

As well as individual docks, a large community swimming area and community recreation facilities, Southview Estates offers an outstanding bonus—Medallion all-electric standards including electric heating. Because they can be used year-round, developer O. J. Hayward hopes the public will come to regard his subdivision cottages both as family retreats and a place to retire in the future.

Whether or not the extension of subdivision living to the summer cottage will gain large scale acceptance remains to be seen but a trend to electric heating is definitely developing. Hundreds of cottagers have



Flags denote cottages hidden among trees in Kawartha Lakes region.



A familiar and often reassuring sight to inhabitants of the Manitoulin Island area of Georgian Bay, Ontario Hydro's sturdy 39-foot work boat "Nanabush" carries line crews and heavy equipment to service cottage customers in locations not readily reached by other means.

turned to this form of protection against the chill of damp summer evenings. Others are installing electric heating to extend the cottage season into early spring and late fall—or all year-round.

Interest in electric heating for the cottage is reflected by the reaction to a bill stuffer recently mailed by Ontario Hydro. Included with the bill issued to all summer customers this spring, the notice advised that a pamphlet was available entitled "Electric Heating For Your Cottage"-and the response to date has been overwhelming. The pamphlet outlines the types of electric heating units suitable for cottages, emphasizes the advantages of proper insulation, and recommends heating capacities for different types of summer cottages throughout the province.

While the number of cottages in Ontario which are electrically heated is unknown, heating certainly accounts for part of the marked increase in consumption by summer customers since Hydro introduced a minimum bill in 1960.

Summer customers used to pay an annual fixed charge for connection of electrical service, in addition to the cost of all energy consumed. Under the present system, however, summer customers pay a minimum \$40 net a year, in two \$20 billings, regardless

of consumption. When meters are read in the fall, the cost of any consumption in excess of 690 kilowatt-hours is added to the second bill.

The minimum bill was introduced because, while other classes of rural customers had been able to off-set increasing costs of operation by a steady growth in their annual consumption, summer customers had achieved relatively small increases due to seasonal limitations. Revenues were actually falling below the cost of providing service. The minimum bill produced additional revenue without affecting larger users among summer customers who were already meeting their full share of costs.

Under the new system, summer customers are being encouraged to use more electricity to take full advantage of the electrical service installed. During the first years it was in effect, summer customers increased their average consumption for the season from 622 kilowatt-hours in 1959 to 712 kilowatt-hours by the end of 1960. And at the end of 1963, some 109,452 summer customers were using an average of 914 kilowatt-hours a year.

Electrical convenience at the cottage is not as incongruous as it may seem. There will always be some hardy souls who insist on escaping completely from civilization—no electricity, no roads, no neighbours. But probably the majority of cottagers, particularly those with young children, prefer the easier way of doing things. Cooking on a wood stove is not their idea of a holiday.

Although electrical living is a boon to the cottage owner, the task of providing electrical service has involved Hydro linemen in some unusual working conditions.

In the Kawartha Lakes region, for example, the innumerable islands form an interlocking jig-saw puzzle pattern each containing one or several cottages. Water channels up to 500 fee wide are crossed by overhead lines Power poles to carry these lines are sometimes anchored to rock surface by bolted cast iron mounts. Or, de pending on conditions, the poles may be set in holes drilled and blasted into the rock.

Where water crossings are longe than 500 feet, the lines must be laid underwater in submarine cable, ofter trenched through rock into and out of the water, on their way across islands and headlands.

Work crews and the necessary ton of building equipment and materia for installing electrical services from lake to land and island to island ar moved about in a type of craft use by the lumbering industry and know as the Ottawa River "pointer".

Hydro crews in the Manitouli Island area are also waterborne. The 39-foot work boat, named after the legendary Indian medicine man Nanabush has become somewhat of a legend i her own right. Resplendent in greety ellow and white—standard colors for Hydro equipment—the "Nanabush was specially designed for Hydro main tenance and construction work in the Manitoulin Island area. Since he maiden voyage in September, 1960 the boat has been serving custome in the McGregor Bay, Whitefish Fall and Killarney districts.

No one knows exactly how mar summer cottages there are in Ontari The only established figure is t

umber of Hydro's summer customers -109,452 at the end of 1963. Beyond at, the educated guesses range from 20,000 to 200,000.

Ultimately, of course, accessibility ill determine whether or not the rend to cottages continues. As in the ast, each new road linking a remote hke or section of river to civilization ill be eagerly followed by adventureme "summer homesteaders" forever eking bluer waters.

The only factor likely to dampen is admirable enthusiasm for new brizons would be continual bumperb-bumper traffic jams between home nd destination—a problem not being verlooked by the Ontario Depart-

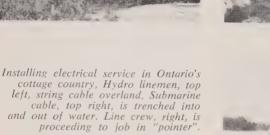
ent of Highways.

Dr. Roy I. Wolfe, a geographer ith the department's Traffic Planning ivision, has been feeding information to an electronic data processor in n effort to determine holiday traffic ows between urban and cottage eas. He hopes to be able to pinpoint here new roads are needed, and not beded, to speed the flow of traffic to ntario's vacation areas.

Dr. Wolfe must be regarded as a ading authority on the recreation eas of the province. Ever since he iblished his two-volume doctoral esis on "Recreational Land Use in ntario" in 1945, he has maintained keen interest in the subject. This ar, Dr. Wolfe's thesis material on mmer cottages was brought up-tote by Harry Swain, who submitted thesis entitled "Recent Change in Distribution of Summer Cottages Ontario" for his B.A. degree in ography at the University of British olumbia. Together, the two theses nstitute the most complete study ailable on summer cottages in itario.

And from now on, as weekenders the paved trail for the cottage intry, they can take comfort from fact that the Ontario Department Highways is concerned about the iday traffic problem, and is busily ving it—electronically.











Comparing notes on access routes to summer cottage areas, Harry Swain, left, University of British Columbia, and Dr. Roy Wolfe, Ontario Department of Highways, discuss the use of computers as a means of establishing holiday traffic patterns and statistics.

TRANSISTORIZED TRAFFIC OFFICER



He doesn't wear a uniform or sport flat feet, but the "big brain" who recently moved into the lobby of Toronto's old City Hall gets more done in less time than a traffic officer with a thousand arms.

Known formally as Univac 1107, and familiarly as "the beast", the newcomer is actually a computer which operates the world's largest automatic traffic control system. It will eventually control some 600 signalled intersections in the Metropolitan area, and promises to speed up rush hour traffic by 25 to 30 per cent.

Behind the computer's instantaneous calculations is a system of "vehicle detectors" buried in the pavement a signalled intersections. These give of impulses as vehicles pass over them providing all the data necessary or traffic density and the speed at which traffic is moving.

Under the new system, the light change in accordance with traffic con ditions as they actually exist, second by second—a vast improvement ove the procedure in general use where traffic lights are adjusted to change at fixed intervals in accordance with previously observed traffic patterns.

When fully operational, the 110 will be serviced by 5,600 telephon lines. But despite its complexity, the machine requires only one operator Seated at the console of the computer he feeds instructions into the 1107 b means of a special typewriter.

lorld's most advanced automatic control system is helping speed Toronto traffic.



Seated at the controls of the computer, a single operator will be able to supervise some 600 signalled intersections in Metro Toronto. Already in use in downtown section, it is releasing officers, like the one at left, from manually-controlled traffic lights.

The computer types out verification the instructions, if they are acceptle, or types out a correction if the tructions are faulty. It works a 24-ur day, and its operators claim, ite casually, that it can make a culation in one-thousandth of a llionth of a second. This particular asurement of time is known in the nputer world as a nanosecond.

Equally staggering is the performace of the printer associated with computer. It prints the informainprovided at the rate of 600 lines ninute. And for those interested in inparisons, that is equal to 250 retaries typing at 60 words a nute—without an error.

The 1107 boasts an infallible prom memory of 32,768 words, and equipped with six magnetic-tape is which may be used to record incoming traffic information and resulting operational instructions out by the computer to the traffic

signals. Also included is a punch-card unit for recording information, along with a reader into which the punch-cards can be fed. And since the system operates literally on a split-second basis, an electronic clock with time resolution of one-millisecond is an essential part of the associated equipment.

The new traffic control system carries a price tag of approximately \$3,500,000, but officials are quick to point out that it will facilitate the flow of traffic by the equivalent of new road construction costing between \$20 and \$40 million. Like an electrical utility system, it's good economics to derive maximum performance from existing facilities. The motoring public will also enjoy a saving of millions in operating expenses, and the system will release police officers from the task of manually controlling traffic signals, leaving them available for other vital duties.

To forestall any suggestion that the 1107 has a one-track mind, J. T. Hewton, operation engineer with Metro Toronto's Traffic Engineering Department, and the man who supervises the computer's traffic duties, points out that the 1107, in addition to controlling traffic, can be programmed to serve other civic departments and outside concerns. The machine is available for other than traffic work in off-peak hours—at a price.

According to Mr. Hewton, the number of motor vehicles registered in the Toronto area has increased by 86 per cent in the last 10 years. The rate of growth is expected to continue, and, with 370,000 vehicles currently converging on the downtown Toronto area every day, the 1107 obviously has its work cut out.

While present plans call for only 600 intersections to be controlled by the computer, the 1107 is designed





to handle 1,000, and the machine is capable of scanning the entire system, reporting on conditions, and making necessary adjustments in the unbelievable time of one second.

There are actually two computers in operation when the 1107 is on traffic duty. The second, a much smaller machine known as the 418, is the link between the 1107 and the communications system. The 418 takes all the incoming traffic information and feeds it into the 1107. The answers—or decisions—are then fed back into the smaller computer for transmission to the traffic signal system for action.

The automatic control system is being put into operation in stages and is expected to be completed within two years. For the first time in history a complete instantaneous record of traffic movement throughout a large Metropolitan area will then be available.

Great things are expected when the computers finally take control of Toronto's traffic. Engineers are openly enthusiastic, and the motoring public is expectant — but, perhaps, not as much so as one recent visitor to the computer centre. He wanted to know, quite seriously, if the computer would provide him with green lights all the way on his daily drive into the city from the suburbs.

Operation engineer J. T. Hewton sees the control possibilities of the system as being almost limitless. These include lane usage control, turn prohibition control, route selection and control for emergency vehicles, as for civil defence evacuation procedures.

The ultimate control possibility visualized by Mr. Hewton is the actual operation of every individual vehicle. This, in effect, would mean the end of the system since traffic signals would no longer be necessary. In the meantime, the people who are introducing the world's most advanced traffic control system are keeping their fingers crossed.

Maze of signal lights behind traffic system computer, top, tell experienced technician at a glance what the unit is doing. In charge of new system is J. T. Hewton, left, operations engineer, Metro Toronto Traffic Department. He sees computer traffic control possibilities as almost limitless.

Flanked by girl pipers, Ontario Hydro Chairman W. Ross Strike presses button to illuminate Milton Town Hall. With him are, left to right: O. L. Hadley, manager; Mayor S. G. Childs and W. C. Rowney, chairman. Antique appliance display in Hydro office, left, helped mark 50th anniversary.



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Half a century of service to the people of Milton, the progressive county seat of Halton, was observed this year by the Milton Hydro-Electric Commission. Among the main features of the celebration was an anniversary dinner attended by 150 guests. Adding to the color of the occasion was the Milton Ladies Pipe Band which led the head table guests on a block-long march from Hydro headquarters to the banquet hall.

In a thought-provoking address as guest speaker, Ontario Hydro Chairman W. Ross Strike remarked on the appropriateness of such a family gathering in observing a half century of progress. He commended the program committee for inviting former commissioners and mayors who had played important roles in the development of Hydro in the past.

Among the head table guests were present commissioners: Colin Smillie; S. G. Childs, mayor; William Rowney, chairman and O. L. Hadley, manager and secretary.

Ontario Hydro guests included Robert Boyer, second vice-chairman; D. P. Cliff, commissioner and I. K. Sitzer, deputy general manager, who had worked early in his career with Milton Hydro.

Tracing the progress of Hydro in Milton, Mr. Strike noted that as the per capita consumption of electricity increased, the cost per kilowatt-hour had decreased. He pointed out that the average cost per kilowatt-hour for the domestic customers of Milton Hydro had dropped from 7.65 cents

in 1914 to less than 1.21 cents at present. During the same period, the number of customers had risen from 235 to 1,877 and the peak load climbed from 284 kilowatts to 5,023 kilowatts.

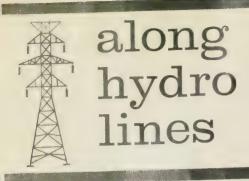
Mr. Strike predicted a bright future for Milton because of its location between Toronto and Hamilton and he foresaw no serious problems if the utility could look forward to the same integrity in management as had prevailed in the past.

Developments in Milton substantiate his optimism. Several new subdivisions are on the drawing boards, many with all-electric dwellings, and an all-electric 30 suite apartment building is now under construction.

Milton Hydro has steadily been improving its distribution system to provide even better service and soon every intersection will be designated by distinctive, illuminated street markers. The utility's own headquarters have been extensively renovated recently and electric heating has been installed.

As part of its golden anniversary celebrations, Milton Hydro has installed a special window display in its Main Street office which incorporates a collection of antique appliances that date back to the turn of the century. And to demonstrate the mutual cooperation and service which exists between the town and the Hydro commission, the utility has undertaken to illuminate the exterior of the town hall to mark the anniversary.

It was Mr. Strike's privilege to officially switch on the floodlights at the conclusion of the banquet.



Preston Manager Named

Chairman William Black of the Preston Public Utilities Commision has announced the appointment of William Boyle as manager. He succeeds John Gurnham who is now with the Owen Sound PUC.

A graduate electrical engineer from Queen's University, Belfast, Ireland, Mr. Boyle had considerable experience in electrical manufacturing before coming to Canada. Prior to his Preston appointment, Mr. Boyle had been consumer service supervisor with Ontario Hydro's Niagara Region. Mr. Black noted that the new manager was highly recommended by Ontario Hydro, where he had worked since 1959.

and erground Distribution Conference

pot-pourri of discussions, reports, displays of materand equipment, plus a record attendance helped to the recent Underground Residential Distribution modurance, held in St. Louis, an enlightening meeting ome 1,100 delegates.

ponsored by the Institute of Electrical and Elec-Engineers, under the direction of the Insulated inductor and Transmission and Distribution Comttees, the conference drew nearly 100 Canadians, esenting both the utility and manufacturing fields.

Topics discussed at the three-day meeting included ourse on the experience of several utilities with iried cable plant; cable terminating methods; direct Buried vs. duct systems; fault location methods; design onsiderations for primary and secondary cables; grounding; transformer equipment; lightning protection; ault protection and sectionalizing; and higher primary and secondary voltages.

In many respects, based on our observations at the conference, Canadian utilities are more advanced in the use of underground distribution than our American counter-parts." said Gordon Piper, senior distribution engineer, who was one of the Ontario Hydro delegates.

He cited examples of the development of a national standard for pad-mounted transformers and the use of aluminium cables as fields wherein Ontario utilities were making a major contribution. He noted, too, that a relatively large number of utilities across Canada had implemented joint-use trenches containing power and communication cables either with conventional 12" separation or in many cases with random or zero separation. These methods, while used by some American utilities, were still in the development stage in many states.

"However, on a quantity installation basis, the U.S. is far ahead of us," said Mr. Piper.

He also praised the equipment display, particularly with respect to pre-assembled cable in flexible duct and new methods for load break switching. He noted that considerable interest was shown in a combination street lighting and transformer pole exhibited by one Canadian manufacturer.

Live Line Work At 300 Feet



Height doesn't mean a thing to these nimble linemen who are tackling live line work at 300 feet for the first time. Two members of the Ottawa Regional travelling line maintenance crew are shown changing insulators on the St. Lawrence River crossing towers that carry 230,000-volt circuits from the St. Lawrence Transformer Station to the Robert Moses Switch Yard at Massena, New York. These 335-foot transmission line towers are the highest in the province.

Electrical Regulations Amended

A modification of the province's residential electrical service regulations was announced last month by Ontario Hydro.

Effective immediately, the modified regulation calls for service entrance equipment in new homes only to have a minimum current-carrying capacity of 100 amperes. Under the original regulation, existing homes in which the service entrance equipment was being replaced were also affected.

The change was made following difficulties in defining clearly and applying the original regulation to rewiring jobs in older homes equipped with 30-ampere, two-wires services.

Electric service entrance equipment includes the entrance conductors, meter base, main switch, and the fuse breaker panel. This equipment determines the amount of electricity available in the home.

The modified regulation defines the term "single-family dwelling" as "a house or housing unit that was not previously permanently supplied with power and that provides facilities ordinarily required for the accommodation of one family and has a separate basement or separate heating system."

Designed to cover individual units such as maisonettes and town houses, the definition of "single-family dwelling" now includes units where present and future requirements of the electrical system approximate those of a detached residence.

ETTERS to the editor

Dear Sir:

The second article in "Off the Wires" in your April, 1964 issue was of more than passing interest to me since my own secretary's family cat not long ago was in the same plight as the cat in Ajax. The Kingston Public Utilities Commission will not allow a lineman to climb a pole in order to bring down a cat since our staff has known of instances in other places in which a lineman has been severely injured or, in one case, has lost his life because a cat has resisted rescue by jumping into his face or else showing some other fright-induced reaction.

However, we have discovered a new cat-rescuing use for our line bucket, or basket. In the case I mention, the cat sat on the secondary rack from Monday night until Friday morning. Above the cat was a 3-phase, 4,160 volt primary line and above that a 3-phase, 44,000 volt sub-transmission line. Our lineman put a board across the top of the basket and raised it so that the cat could, if she had so chosen, have walked out on it, and been safely lowered to the ground. She did not choose to do so until a tempting heap of canned salmon had been placed on the board, whereupon she promptly jumped to the board and was then lowered to the ground safely and without risk to any lineman.

I agree with you that rescuing a cat from its perch on a hydro pole can do wonderful things for the public image of the electric utility but I suggest that if we adopt this public relations device it would be well to do it the way we did it.

Robert H. Hay, Commissioner, Kingston Public Utilities Commission

Editor's Note: Should we add canned salmon to the approved list of utility stores?

bute Paid To Superintendent

Strathroy's new substation will be named the E. R. Smithrim Station, in honor of the PUC's first superintendent, Ernie Smithrim, who was an honored guest



at the commission's annual banquet recently. Mr. Smithrim planned and supervised the construction of the town's first substation built in 1914. After working in Strathroy for 14 years, Mr. Smithrim moved to Trenton to become superintendent of that PUC until his retirement in 1950.

Shown in the photograph are; left to right: John Vanderheiden, sales promotion manager, London, PUC, guest speaker; Winston Pearson, chairman and E. R. Smithrim.

Mr. Pearson stated in his report to the electrical contractors, appliance dealers, hydro officials and employees who attended the banquet that in the last three years, four apartment buildings, 36 homes and 16 commercial buildings had electrical heating installed in Strathroy. He also pointed out that 300 water heaters had been sold.

Direct Current Transmission

British consultant F. J. Lane reported to the Los Angeles Department of Water and Power that a 900-mile, high-voltage, direct-current line with a 1,200 megawatt capacity was the best method of transmitting surplus power to the city from the Bonneville Power Administration system in the Pacific Northwest. Such a line could also feed steam-generated power from Los Angeles to the Northwest.

Consolidated Edison Company of New York had previously been advised by Stone and Webster Engineering Corporation that direct current would be the most suitable for transmitting some 2,000 megawatts to their system from a proposed hydro plant at Hamilton Falls in Labrador.

AMEU Honors I. K. Sitzer

The first pair of spurs that Ken Sitzer wore when he began his Hydro career were presented to him, along with a citation welcoming the deputy general manager of Ontario Hydro to the exclusive Honorary Membership club of the AMEU. Mr. Sitzer becomes the 24th member to be so honored "for his outstanding contribution to the progress and development of Hydro in Ontario . . . "

C. W. King, now manager of the Dresden Utilities Commission, was the last person to wear the spurs



which were found in a storeroom in the Ridgetown Public Utilities Commission. Mr. Sitzer had been superintendent of the Ridgetown utility early in his career.

Pictured at the Granite Club in Toronto where the dinner and reception were held are, left to right: John A. Torrance, past president of the AMEU; I. K. Sitzer; James W. Hammond, president; and R. S. Reynolds of the President's Council.

MUNICIPAL BRIEFS

London Public Works Committee recently approved the preparation of maps pinpointing the locations of all underground utility locations. The committee recommended that the city contribute \$500 of the \$2,500 cost of the 20 key charts required. The remainder would be shared by the London PUC, Bell Telephone, Union Gas and Cities Heating who are members of the utility co-ordinating committee established in 1962.

Three times retired Abraham Bowman, long associated with the Elmira and Preston public utilities, died recently at the age of 90. Mr. Bowman began with the Elmira PUC in 1914, retiring in 1947 when he moved to Preston. He held positions twice with the Preston PUC, being called back the last time to act as manager at the age of 83. Mr. Bowman had been honored by the Canadian Section of the American Waterworks Association who nominated him to their Hall of Service.

Fred Bridle has resigned as manager of Amherstburg PUC. Among the highlights of his period of office, according to the Amherstbug Echo, was the construction of the first electrically heated home in Ontario. The newspaper observes that his record of achievement as a utility manager would be hard to top.

Belleville PUC is discontinuing its appliance shop after 50 years of operation. Behind the decision was the fact that the operation was losing money. Too, the floor space was needed for other purposes and it was felt that the retail outlet had served its purpose.

Windsor Utilities Commission, to help celebrate its 50th anniversary, is asking residents to donate or loan

antique electrical items for a special display in the showrooms. The commission is planning the official opening of its new McDougall Street substation for September, to coincide with an official banquet an other anniversary celebrations.

After 42 years of service with the Stratford Publ Utility Commission, Roy Jasper, line foreman, haretired.

Fort William Hydro recently presented the followir employees with 25-year pins: John McRae, Ray Kir Bert Steadwell, Viola Duffield, Pat Doherty ar Angela Carson.

Stanley McNeil, former superintendent of Sarnia Hydrand now serving on a part-time basis, received a 4 year pin recently. In making the presentation, Chaiman W. E. Allen said, "your service is in a class litself".

T. A. Gagen has been named acting assistant gener manager of London PUC, replacing A. L. Furanna whis now acting general manager.

Peterborough Utilities Commission has completed to changeover of it primary distribution system fro 2,400 volts to 4,100 volts, at an approximate cost \$30,000. The higher voltage is expected to redupower losses and provide for expected load growth.

Waterloo commissioners laughed as they wrote (\$18.67 in bad debts accumulated over a year. The wondered how two delinquent customers managed thwart the commission's secretary and chief bill collector, W. G. Woods, who has a reputation for gettin his man. Over the years only a few have managed escape paying, by going to Mexico, England or behighted the Iron Curtain.

Due to the interest shown by many municipal utilit in starting a plan similar to the Ontario Hydro dus to-dawn lighting program, a rate has been establish for this purpose which is equal to 110 per cent of the charge per kilowatt for street lighting in the particum unicipality concerned. In establishing the rate of the private rental units is identical to that of municipal street lighting. The rate applies to a variety luminaires and lamp wattages which may be select by the utilities for this promotion.

Burlington is going all out for electric heating. In 19 alone, electric heating was installed in 43 single dw lings, 58 apartment units and 32 motel suites. additional 76 units are under construction.

Scarborough PUC will find a gentler way of break the bad news to good customers who have forgotten pay their bill. The commission decided to work ou double system whereby "chronic" offenders will c tinue to receive notification in the present form, wh first offenders will get a more softly worded reminder

St. Catharines Board of Education has approved study to determine the cost of heating city schowith electricity as compared to the cost of operate existing oil, gas and coal heating systems. The sur will be made by the city's Public Utilities Commission

By the end of 1967, Kitchener PUC hopes to have all street lights converted to mercury vapor lamps. Of the 8,216 street lights in the city, 1,763 have already been changed to mercury vapor.

The seventh annual conference of District 1, AMEU was held in Brockville recently, with over 100 delegates attending. Guest speaker was Thomas W. Kierans, of Sudbury, speaking on the "Great Replenishment and Northern Development Canal", in which he expressed his ideas for raising the water level in the Great Lakes by diverting water from the James Bay watershed.

William M. Young, Newmarket Hydro's superintendent for the past 14 years, died recently following an operation.

Riverside PUC is adding a new \$118,000, U-shaped annex. It will include increased display space, meter shops, storage area and employee facilities.

London PUC and the city have been awarded \$10,000 damages and costs as a result of an October 13, 1961 power break which left thousands of Londoners without electricity for up to three hours and seriously damaged a substation. The award came in an out-ofcourt civil action settlement. Defendent in the case was a road-building firm whose power shovel caused a flash-back explosion and fire at the substation when it accidently severed a 13,000-volt cable while repairing curbs and gutters.

Long service employees of the Town of Mimico will receive an annual bonus as part of a labor agreement with Local 36 of the Canadian Union of Public Employees. It is the first such agreement between a Metropolitan Toronto municipality and a union. The arrangement calls for a \$50-a-year bonus after eight years service, \$100 after 13 years, \$150 after 18 years and \$200 after 23 years on the job.

Neustadt Hydro recently paid tribute to Albert Ryan, former chairman, who retired last year after 39 years on the commission. Chairman J. E. Schnurr presented Mr. Ryan with an engraved desk pen set.

Kingston PUC's oldest living retired employee, Edward Hartrick, and 13 other present and retired employees, were recently presented with wrist watches at a Quarter Century Club ceremony. Mr. Hartrick, who will be 88 in November, joined the commission in 1893 and retired in 1947 at the age of 71.

Woodstock PUC has purchased Ontario Hydro assets worth more than \$100,000 in an area recently annexed by the municipality.

Twenty-five years ago, the Point Edward PUC was established after the system had been operated for 22 years by Sarnia Hydro. Marking its 25th birthday, the utility sent a letter to each customer outlining the progress of the commission and emphasizing the low cost of power. It also assured customers that every effort was being made to offset mounting costs, to ensure efficient operation and to maintain the lowest practicable consumer rates.

The commission, consisting of Chairman F. G. Tig-

well, Commissioner Thomas McCord and Reeve Stanley Campbell, entertained past commissioners and councillors at a dinner in honor of the occasion. The event also marked 25 years of service for Manager J. A. Bannister

Novel Window Display



A Mother's Day promotion incorporating both the old and the new drew considerable attention to the show windows of the Toronto Hydro-Electric System last month. The 1905 electric range, a highlight of the display, was donated to the proposed Hydro Museum of Electrical Progress by a Brockville hardware dealer and is believed to be the first electric range installed in that town. The top elements are elevated about four inches above the surface top to bring the cooking utensils closer to the busy housewife. Appearing in the 1905 fashions is Bobbie Morrison of the Toronto Hydro audit section, while the modern girl beside the 1964 electric stove is Maureen Hunter of the personnel department.

Motorist Must Pay

According to a recent ruling of the New Jersey Supreme Court, motorists who damage utility poles must pay the full cost for repairing or replacing them, including the cost of a new pole. Defendant in the case had contended that he should only pay the cost of the pole he damaged, less depreciation, along with crew costs for replacement.

PRESS COMMENT

The following editorial which appeared in the April edition of Modern Power and Engineering reflects a basic understanding of the subject in question:

"A few subdued moans greeted Ontario Hydro's announcement that it will build a one million kw coalfired power station near Sarnia. The moans came from a few ardent (but ill-informed) advocates of a headlong rush into nuclear power.

"Prior to the announcement there had been some speculation as to the nature of Ontario's next major power station. The fact that Ontario Hydro and AECL were actively working on designs for 500 mw nuclear reactors led some people to think that this unit would form the basis for Ontario's next power station.

"Ontario Hydro's chairman, W. Ross Strike, put the situation in perspective when he said 'Nuclear plants are most economical when used as base load stations, operating round-the-clock with few shut-downs. Coal burning stations, by contrast, can be operated more flexibly to meet peak demands during shorter periods because they can be started and shut down on relatively short notice.'

"In short, the conventional coal-fired station selected can do a job that nuclear reactors are not designed to do. Add to this the scheduled operating date for the new plant in 1969, and it becomes obvious that a coal-fired station is the practical answer to Ontario Hydro's current needs.

"At the same time, the new plant should set a new low in Ontario's cost for thermal power. 'The radical increase in size and capacity of units to 500,000 kw results in greater economy of operation,' Mr. Strike said. 'This new plant is yet another step in closing the cost gap between coal-fired and hydraulic generating stations.'

"Does this mean that nuclear power in Canada has suffered a setback?

"Not at all. The Douglas Point nuclear station . . . should provide an opportunity to prove a number of theories about Canada's nuclear power program. The 500 mw nuclear units being designed will undoubtedly be built when they are needed to do the job for which they are being designed—provide base load power. This time is certainly not far in the future.

"In the meantime, Ontario Hydro's customers will welcome the addition of the low-cost power provided by Canada's largest thermal units. And even the most impatient nuclear power partisan can rest assured that equally large nuclear power units are not far behind."

Wild Life on the EHV

As reported by Lex Schrag in the Globe and Mail.

"Snakebite kits go into the bush with every Ontario Hydro crew building the new, extra-high-voltage transmission line east of Parry Sound. Owen T. McCarthy, project engineer, has a slogan facing his desk: 'No work is so important, no emergency so great, that we cannot take time to do our work safely.' He takes this injunction literally; he has checked every hospital in the area to make sure it has anti-venin.

"To date, only one massasauga rattlesnake has taken a shot at a Hydro workman. Fortunately, it missed; it hit his trouser cuff instead of his leg. He didn't miss. He laid out the snake with a sapling. Since then, he and the other men in his crew are wearing high laced boots. Yet the crews are still on the outer fringe of the rattler belt, and there have been only a few days of really warm weather to stir up reptilian action.

. . . "More belligerent than the rattlesnakes, though not so lethal, are the blackflies and mosquitoes. Even hardy Hydro workers have been driven to using fly



veils and repellents, though most of them just go or swatting and cursing.

"The crews lead a rough life, but there are compensations. There are now 260 of them on the job in sever camps and a base depot. They pay \$17.50 a weel board, get fresh vegetables every day and take off ou of the bush at weekends. They work a 44-hour weel and plenty of overtime."

Symposium On Direct Conversion

The European Nuclear Energy Agency and the French Institut National des Sciences et Techniques Nucleaire are sponsoring an international symposium on magneto hydrodynamic electrical power production, to be held in Paris from July 6 to July 10. Research on MHI processes for the direct conversion of energy into electricity will be examined and the seminar is expected thelp spread information on this new technique.

Energy Production in April

Primary energy provided by Ontario Hydro in April totalled 3.35 billion kilowatt-hours, an increase of 11.4 per cent over the same month a year ago.

For the first four months of 1964 the total is 13.83 billion kilowatt-hours, up 8.5 per cent over the same period last year.

Adjusted for seasonal influences, primary energy demand in April was 3,44 billion kilowatt-hours, 3.4 per cent more than the previous month.

The seasonally adjusted total for April represents 41.25 billion kilowatt-hours at annual rates. This is 296.5 per cent of the energy demand in 1949.

OFF THE WIRES

Who says the dollar has lost its buying power? Listowel PUC recently purchased a corner lot with frontage on Main Street, complete with a two-storey brick building for the sum of one dollar. Considering that the building contains a two-bedroom apartment in good condition, it sounds like a pretty shrewd deal. Of course, the utility also showed some generosity in departing with its own property for a similar sum and both parties to the swap are happy about the whole thing. Listowel PUC will renovate the new and larger premises to its requirements.

Almost every wage earner in Canada works a good part of the year for the various governments who guide the destiny of the land. As Ronald Anderson of the Globe and Mail commented, the 100,000 Canadians who earn \$10,000 a year start working for themselves about the first of May. Up until then, all they earned went to pay taxes. Other financial philosophers estimate that, on a time basis, lower income workers pay a similar tithe.

During a 30-year working career, then, a man would devote about 10 years of effort to the welfare of the state. We are all delighted, of course, for the privilege of contributing in this way to the common weal but it is sort of nice to be on our own for the rest of the year.

Goliath notwithstanding, the stone cast by David was relatively harmless compared with those hurled by some misguided youths in the Milton area last month. Using power line insulators as targets, the boys are thought to have caused a pole-top fire which resulted in a power failure of more than ordinary consequences. Chief casualty was the Mohawk race track where thousands of fans were turned away when this modern racing plant ground to a halt without vital electricity.

Vandalism is nothing new, of course, and it is virtually impos-

sible to eliminate because of the extent of the Commission's distribution network. What puzzles us is the inability of these people to comprehend the outcome of their irresponsibility. No doubt dad would take the situation in hand (literally) if he knew sonny boy was pilfering his pockets. Yet each time a juvenile marksman takes aim at an insulator he is drawing a bead on the family purse. Vandalism is expensive and the cost of supplying power must be reflected in the customer's electrical bill.



We always thought Hydro News had quite an impact on its readers but underestimated its influence on the very young. The reader shown in the photograph was so impressed that he joined Hydro himself this year! He is Brian Wastle of Willowdale whose grandfather, L. R. McKim, was district electrical inspector in Hamilton at the time. Brian has just completed his first year in engineering science at Toronto University and is employed for the summer at Richview T.S. He is holding the July-August, 1945, edition of Hydro News — hot off the press when the picture was taken.

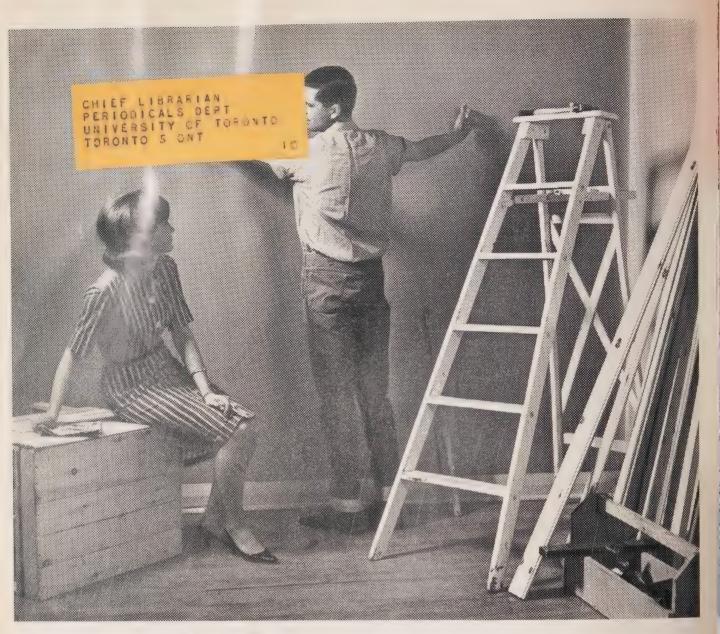
On the subject of muskeg, which is discussed at some length in this issue, it is interesting to note that several small but modern thermal-electric stations have been built in the bogland district of Galway, Ireland, which employ the most primitive of fuel — peat. Feeding into the national power grid, these stations were built primarily to

relieve the poverty of the farmers of the district in the years after the Second World War and their operating economy is believed to fall considerably short of coalfired plants. One of these stations would consume about 30,000 tons of turf peat a year. This is harvested by the farmers who receive about \$4.50 a ton.

His competitors laughed when the manufacturer sat down to design the first electric toothbrush but their jeers turned to tears when the sweet notes of success began issuing from the company cash register. And they lost no time in joining the bandwagon. Printer's Ink suggests that there are now between 40 and 80 manufacturers in the United States and it estimates that more than three million electric tooth brushes have been sold in the three years they have been on the market. Sales of these units are expected to reach five million annually by 1965. Along with hair dryers they are already the most popular appliances in terms of sales.

It would seem, then, that the old saying about the world beating a path to the better mouse trap builder still holds true. Of course, the electric tooth brush is a more complex instrument than the hand operated model and new complexities bring new problems. Take the recent Montreal case where an alarmed TCA ticket agent brought the RCMP on the run to investigate a suspicious piece of baggage. Digging frantically for a bomb, the officers came up with an electric toothbrush grinding its gears.

A day or so in jail won't be so bad in some parts of the province when the Ontario Provincial Police completes its new detachment buildings. Of a new design, the five single storey buildings will be located at Marathon, Longlac, Guelph, Napanee and Dutton. Some will have a general office, courtroom, three-bedroom residence and cells. All will offer the solid comfort of electric heating.



Adding living space to your home? Your Home Modernization Centre can help a lot.

Before you get as far as the first saw cut... before you start planning and reckoning costs... visit your Home Modernization Centre. You'll be given free information and an informative planning guide that will help you with construction problems, lighting, supplementary heating. Whether you're building—or planning to build—a recreation room, converting an attic or a sunporch,

or adding a new room, take a little time off and come to your Home Modernization Centre. It could save you time, money and help you do a really professional job.

Free planning guides also available for kitchens and laundries.

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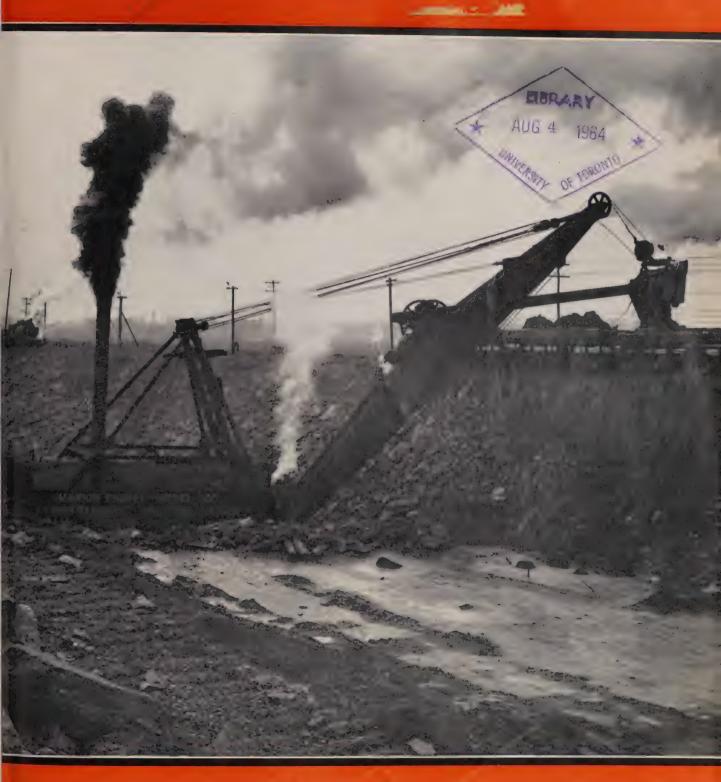
This advertisement is one of a series being made available without charge to municipal electrical utilities participating in the Home Modernization Program.



ONTARIO HYDRO NEWS

JULY-AUGUST, 1964





This construction flashback is continued on page six.

Playing with toys may be fun but it hardly describes what Gordon Campbell is about in this photograph. As field supervisor with the Electrical Utilities Safety Association, he is using a model aerial basket to demonstrate safe handling procedures. More about this kind of instruction is on page 10.



Parting a sheep from its fleece is only the start for these ladies. Like many others of the Madawaska valley, they wash the wool, spin it and knit it into garments. Nick Nickels' account of this Southern Ontario frontier starts on page 12.

JULY-AUGUST, 1964

ONTARIO HYDRO NEWS

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THE COVER

The busy scene depicted on this month's cove was photographed, March 3, 1921. Excavation of the Chippawa power canal was highly mechanized operation carried out in conjunction with Hydro's first major development on the Niagara. Drained for the first time, the canal is now undergoin extensive renovations. See page one for details.

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COAL IS THE CARGO



A proud ship — the Cape Breton Miner is the largest self-unloader ever built on the Great Lakes.

Coal looms large on the Ontario Hydro shopping list and its growing use

is leaving an economic wake from Port Weller to Nova Scotia.

Deep in the bowels of the Cape Breton coal fields a grimy-faced miner grins at the sound of the shift whistle and shuffles past the time-clock to record another good day's wages.

Hundreds of miles away, a sailor takes his ease on the cargo deck after a long trick at the wheel and leafs through the pages of his bankbook as the green shores of the St. Lawrence slip silently by.

What do these men have in common? Not much directly, perhaps, but with a

little imagination their pay cheques might be traced to the day in 1962 when Ontario Hydro signed a five-year contract for Nova Scotia coal.

And the two men serve very nicely to suggest the ripple effect of the Commission's huge purchases on the economy of the country. More commonly seen in the light of a producer of power. Ontario Hydro is also a prodigious buyer and the goods and services required to build, operate and maintain its vast facilities have a very



Ontario Hydro Chairman W. Ross Strike receives silver tray from Captain George Davies at conclusion of ship's first run from the Maritimes. The skipper made the presentation on behalf of the people of Sydney N.S.

real bearing on the general business welfare.

Take the case of the miner. Employed by the Nova Scotia coal industry, long beset by high production and transportation costs, he enjoys more job security because of the lusty appetite of the Commission's thermalelectric plants.

Bound by its founding legislation to supply power at the lowest possible cost, Ontario Hydro is only able to purchase coal from the Maritimes at competitive cost because of Federal Government subventions. But aside from price, burning characteristics are a vital consideration and through a careful blending process, the Cape Breton coal producers have been able to turn out a very high quality product. Extensive testing of the Canadian fuel proved its suitability and it may be readily mixed with United States coal at the plants in the normal layer-onlayer method.

About 350,000 tons of Cape Breton coal were purchased last year. The contract calls for 450,000 tons this year, 550,000 tons in 1965 and 750,-000 tons in each of the following two years. The contract is valued at \$28 million.

There are other factors helping to lower the cost of Nova Scotia coal and that's where our sailor with the bank book comes in. He was reclining on the deck of the Cape Breton Miner the most economic vessel yet designed for the transportaion of coal from the Maritimes to the Great Lakes. He too owes his job to the thermal plants for his ship was built specifically for the run.

Christened late in April by Mrs. John P. Robarts, at the Port Weller Dry Docks, the S.S. Cape Breton Miner is already at work supplying the R. L. Hearn and Lakeview generating stations. She is the largest self-unloader ever built on the Great Lakes and her unlady-like proportions fit the seaway facilities like a plump hand in a small glove. Her vital statistics include

an over-all length of 680 feet a 75foot beam and a cargo capacity of 22,-000 tons. She has a maximum draft of 28 feet, nine inches in salt water, which is a good way of introducing her most unusual feature — a very prominent chin.

Unlike her less versatile sisters, the Cape Breton Miner will set sail for the seven seas with cargos such as limestone or grain when navigation closes on the inland waterway.

Experience in salt water has shown that lake vessels can make virtually no progress against even a moderate head sea due to their square-nosed design, which is the most practical for the lakes. To overcome this limitation, the new coal carrier has been designed with a chin-like bow which juts forward under the water line, enabling her to plough through ocean waves.

Turn-around time is just as important as carrying capacity in the economics of water transportation and here, too, the big carrier is in a class by herself. With a three-belt conveyor system running the length of the cargo holds and feeding onto a 250-foot unloading boom, the ship is designed to discharge at the rate of 2,400 short tons per hour.

It takes about 12 hours to unload a cargo, which represents enough coal to heat every home in the town of Leamington all winter. Loading at Sydney, on Cape Breton Island, is as fast so that the vessel makes the round trip in just 10 days.

But the ripples imposed on the bright surface of the Canadian economy by the Maritime coal contract have not yet subsided. Even as the coal miner and the sailor continue to enjoy the fruits of their labor, marine engineers, welders, draftsmen and shipwrights are preparing to join them. A sister ship to the Cape Breton Miner is already under construction at Port Weller. She is destined for the same trade and is required to handle the larger tonnages contracted for in the vears ahead.





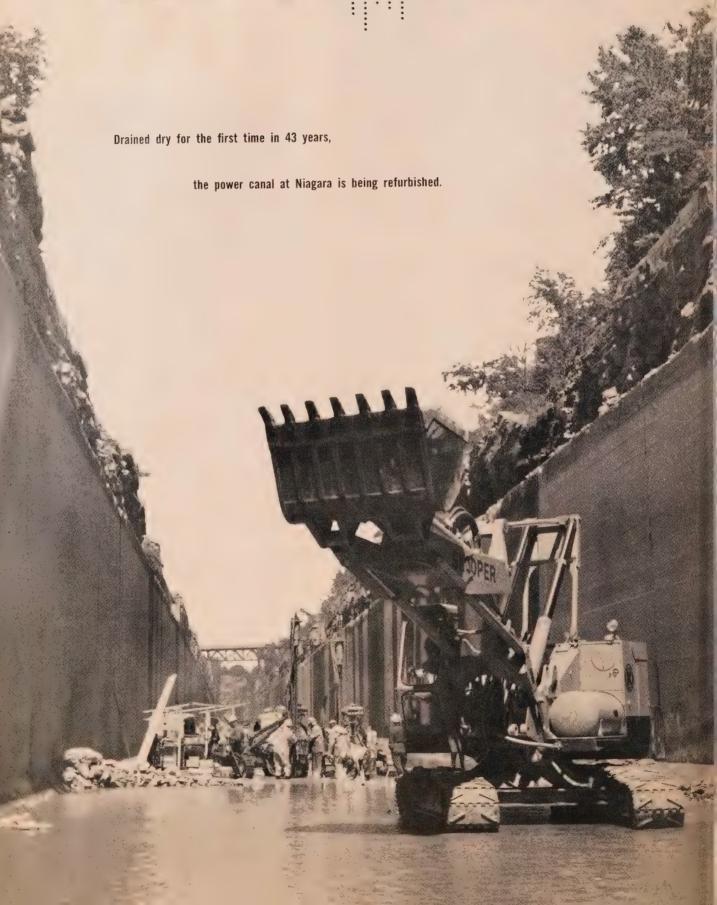






Pride of Upper Lakes Shipping Limited, the Miner offers all the comforts of home. These interior views show, from top, captain's cabin, galley and crew dining room.

BOTTOMS UP AT CHIPPAWA



by BOB MORROW

"We'll have the gate down by midnight," said the engineer-in-charge, standing on the south bank overlooking Ontario Hydro's historic Chippawa power canal. It was 11:45 p.m. on May 4.

Overhead the superstructure of the electrically-operated Montrose gate loomed in the darkness. Lights glinted on the yellow hard hats of several Hydro workers on a catwalk and streaked the dark water.

Then, creaking and grinding, the massive gate started to drop 45 feet to the canal floor, shutting off the swift flow of water to the Beck plants.

By midnight, as forecast, the gate touched bottom. Water swirled and eddied behind it, while downstream the level slowly sank.

The lights went out.

For the first time in its 43-year history, the 71/2 mile canal which supplies 25 per cent of the water used by the Beck plants was being drained. About three weeks later the canal bed was exposed, revealing the scars of old age.

Newspaper reporters who expected to find clues to unsolved crimes were largely disappointed. So far, construction workers have turned up:

-Two sawed-off shotguns.

-A cash register keyboard.

—Two battered bicycle frames.

—A purse containing 1963 identification papers.

But Hydro men did find their work cut out for them. Accumulations of debris which had fallen from the rock walls were impeding the flow of water and reducing power output.

Preliminary work on the canal project started in February. This included construction of a temporary pipeline and pumping facilities to assure an alternate supply of fresh water for the city of Niagara Falls. Other pipelines were built to supply water to a large industrial plant which drew cooling water from the canal, and to handle the discharge from the city sewage treatment plant.

Workmen also began blasting out two-lane access ramps for heavy construction vehicles near the Montrose gate and about seven miles downstream near the crossover of the old and new canals. After the gate was closed, a cofferdam was erected about a mile below the downstream ramp so the canal could be pumped dry.

Meanwhile, the Commission decided, on the basis of extensive engineering studies, to deepen the canal over a five-mile section downstream from the Montrose gate, with changes in depth varying up to a maximum of 12 feet. Farther downstream, a 11/2mile section will be widened to a total

width varying from 75 to 90 feet.

Deepening will not affect the amount of water passing over the Falls, which is regulated by an international treaty between Canada and the United States.

The additional water will be diverted from Hydro's less efficient Cascade plants (Ontario Power and Toronto Power, built in 1905 and 1906) via the enlarged canal and used in the more productive Beck stations. Deepening of the canal will increase its capacity by 6,500 cubic feet a second, representing an 11 per cent increase in electrical output at the Beck plants.

Hydro plans to put the canal back into service late this year and to drain it again in the spring so that the project may be completed in 1965. The entire job will cost approximately \$11,000,000 and require a total of 400 workers.

Receiving most of their water from twin 5½-mile tunnels which dive under the city of Niagara Falls, the Beck plants continue to operate during the shutdown.

The Chippawa canal system actually begins at the junction of the Niagara and Welland rivers above the Falls. Water flows four miles up the dredged section of the Welland, makes a right turn and runs for about a mile before it reaches the Montrose gate.

Preliminary work began on the Queenston-Chippawa development, as



Renovations are in full swing, left, despite the damp bottom. Powerful "watercannon", above, blasts out loose rock.



Skin divers helped during the drying-up process by checking for debris and pin-pointing leaks in canal and cofferdam.



This temporary cofferdam near the canal outlet prevents water backing up so that pumps can remove trapped water.

it was then known, in March, 1917. It was placed in service in January, 1922, after more than 17,000,000 cubic vards of earth and rock had been excavated and 450,000 cubic yards of

concrete had been poured.

Top width of the canal proper at its widest point is 307 feet. At the Lundy's Lane bridge, where the waterway looks like the Grand Canyon, the floor dips 140 feet below ground level.

In the "whirlpool section" the canal crosses what was once an old gorge with a quicksand bottom, which was filled with rock and allowed to settle. Then it was excavated and lined with concrete.

The original project was a staggering undertaking for the young Hydro organization. To handle excavated material, 82 miles of railroad track were laid. Trains were hauled by 50 locomotives, mostly electric.

Fourteen shovels, most of them electrically operated, were used for excavation, including five which were the largest in the world at that time. They could load a railway car, standing 60 feet above the shovel, in 11/2 minutes.

Another ingenious device was a concrete mixing plant which travelled on rails along the canal bed. It was fed cement and gravel through a wooden chute running from a railway car on the bank high overhead.

But methods differ for the 1964 face-lifting. While the canal was being drained a barge sailed up the canal carrying a "water cannon" or monitor to blast loose rock and gravel from the walls. Giant trucks filled by an out-sized front-end loader are being used to haul away debris. The loader, which can virtually spin on a dime, handles 10 trucks an hour.

To complete the project as soon as possible, work is going on 20 hours a day. When the sun goes down floodlights illuminate the loading areas.

Well and truly built, the "big ditch" was found to be in good condition considering the passage of time and water since the turbines began to turn at Hydro's first major construction project on the Niagara. Cleaned of debris, deepened and repaired, the Chippawa power canal should be good for another 40 years of uninterrupted service.

Building the 'big ditch' in 1921 . . .



Taken in 1921, these photographs suggest degree of mechanization achieved b Ontario Hydro in its first major power project at Niagara. Top photo shows ingeniot concrete mixing plant on rail in canal bed receiving ingredients from box car. Bus scene, below, shows mobile steam plant supplying battery of drills.



PLANTING TIME IN GUELPH





John Clark, Guelph park superintendent, above, first sketches his intricate floral clock designs on paper. Interpreted in plants, they appear as the attractive hillside timepeace, left, located in Riverside Park on Highway 6.

usands of plants Il out the time of day in the al City's Riverside Park.

ne will tell, of course, but John rk, superintendent of parks for the y of Guelph, seems to have sewed the title of Canada's leading hority on floral clocks. In addition the clock-calendar located in elph, his creations have been planin British Columbia and New nswick while even the Americans the deep South are getting the of day from a Clark-inspired al timepiece.

lessed with a green thumb, a d imagination and a very Scottish nt, Mr. Clark was engaged ctly from his homeland to initiate Guelph Parks Department in 1948. accomplishments are very much in ence throughout the city and he is cularly proud of Riverside Park a major tourist attraction and a culturist's delight.

he calendar clock, located on the of a hill in the park, is sloped low an unimpeded view by those ing in the rose gardens below. pecial ramp provides camera enasts with the necessary height to mpass the 44-foot-wide their lenses.

te clock is unique in both floral mechanical design. As a calendar

it registers the date in Echeverial Secunda (hens and chickens) which must be replanted each day. Mr. Clark also invented the clock mechanism and his design is guarded by a patent issued in 1957.

Enclosed beneath the clock's face, the driving mechanism consists of an electric motor with a reduction drive to the clock hands. "There are all kinds of floral clocks in the world," Mr. Clark says, "but I believe that my design and a Swedish water clock are the only ones which have actually been patented."

"This year there are nine plant varieties and fourteen colors in the design," he said. "The hands of the clock alone contain nearly 300 plants and carry a weight of 280 pounds. The clock's face is planted with 7,000 carpet plants which are low growing such as Coleus, Alternanthera, floss flower, cotton lavender and finger mosses."

Planting the clock is the easy job. It takes nearly a week of intricate work, but trimming the face entails arduous toil. "Eight hours are required every two weeks to keep the face level and this must be done by hand," Mr. Clark explained. "If the plants were clipped the tops would turn brown and besides, nipping the tops helps spread the growth to give the face a fuller, rich appearance.'

As an independent designer and

consultant, Mr. Clark's clock interests are not limited to Guelph, where crowds of up to 5,000 a weekend have enjoyed the pleasant display. Straight floral clocks without the date have been installed outside the New Brunswick Electric Power Commission generating station at Beechwood, and in the park at Vernon, British Columbia. A recent bequest to the city of Birmingham, Alabama, took the form of a Clark floral-calendar clock. "Each year, I supply the various purchasers with an original design for the face," Mr. Clark remarked.

John Clark smiled when asked if he had ever seen the famous floral clock in Edinburgh. He replied, "as a wee lad, I used to be fascinated by it and would watch it for hours. But my interest in floral time-keeping really stems from my clock collection, which I'm afraid I've neglected lately."

One reason for the neglect is his work schedule. As superintendent, Mr. Clark and his staff of 25 men are responsible for some 283 acres of parkland in Guelph. This year the Parks Department grew 72,000 plants in its own greenhouses. These blooms, distributed throughout the 14 parks and around municipal buildings, help make the Royal City well worth a place on the tourist's travel agenda.

New utility centre assures continued good service to Sarnia Hydro customers.



SARNIA GEARS TO SERVE

Although Sarnia has less than 60,000 people, it is the fifth greatest municipality in the province in terms of electric power consumption and the utility responsible for supplying this vital energy recently took an important step towards ensuring continuity of the first-class service it has provided since 1916. The move involved construction by Sarnia Hydro of a \$420,000 service centre reflecting the very latest developments in design and facilities.

Named the John T. Barnes Service Centre in honor of the present vicechairman of the Sarnia commission, the new building contrasts sharply with the former accommodation. This was a converted steam generating plant built in 1912 and utilized since the formation of Sarnia Hydro as headquarters for outside crews, vehicle maintenance and other service func-

The utility's administration section remains downtown but the five-acre site of the new service centre, located near the geographic centre of the city, makes ample provision for any future expansion or centralization program.

Speaking at the impressive official opening ceremonies, John Barnes said: "It is a great honor and the highlight of my life to have this building named after me". He said he wished he could share his pleasure with the people of Sarnia who had elected him to the commission year after year. He said that maximum service at minimur cost would continue to constitute basi commission policy and he revealed that the new service centre site had bee acquired in 1956 for \$18,000 - onl about a quarter of its present worth.

Participating jointly with Mr. Barne and Sarnia Hydro Chairman E. W Allen at the ribbon-cutting ceremonies Ontario Hydro Chairman W. Ros Strike said: "When one thinks of serv ice in this locality, one thinks immed ately of John T. Barnes."

The Ontario Hydro chairman too advantage of the occasion to announc the name of the commission's lates thermal-electric project — the Lamb ton Generating Station — to be loca ted at nearby Courtright in Lambto County. He explained that there wa presently about 800,000 kilowatts c load in the area and that this woul increase to more than 1,000,000 kild watts by the time the plant was buil He said construction would get under

MR. BARNES 0F SARNIA

The big block letters on the facade of the handsome new service centre spell out John T. Barnes but to the people of Sarnia they stand just as surely for Hydro and top-notch electrical service. For John Barnes has been an elected member of the Sarnia Hydro-Electric Commission continuously since 1940 and during that period he has served as chairman six times.

A former mayor and alderman of the city, Mr. Barnes has extended his Hydro interests and activities to the extremities of the province through his work with the Ontario Municipal Electric Association and he has won the respect and esteem of his colleagues with his willingness to serve.

Interviewed by Hydro News at th opening of the service centre named i his honor, Mr. Barnes reviewed som of the highlights he likes to recall (Sarnia Hydro's development. Goin back to the beginning he observed that the system had experienced frequenc changes twice. Power had been gener ated by steam at 60 cycles prior t the advent of Hydro in 1916 whe conversion to 25 cycles was required The wheel turned full circle in 195 when the city was returned to 60-cyc power during Ontario Hydro's fre quency standardization program.

The Sarnia Hydro veteran note that his utility had operated the Poil Edward system from 1916 to 193 and he drew attention to the fact tha ive ceremonies, arked official of John T. Service Centre.

proudly in front w service centre, se Sarnia Hydro are, left to right: . Luckins, secre--treasurer; nd J. G. Church, issioners; E. W. Allen, chairman eceased); John T. vice-chairman; H. T. Ross and Phelps, manager.



y in earnest next year.

Among the special platform guests oduced to the large gathering by airman Allen were three of the men o founded the Hydro system in Sar-47 years ago. They were Chester ton, chairman of the fledgling Hydro hmission in 1917, 1918 and 1920; liam Kenny, chairman in 1919; and hald Leslie, secretary-treasurer of system before it was handed over he original municipal commission. n drawing attention to the special played by C. S. Phelps, the presmanager, and H. A. Luckins, secry-treasurer, in the detailed plang associated with the new centre, Allen pointed out that only three nagers had guided the utility's afs since its inception. He noted that Phelps was a son of the original nager who had served in that poon for 25 years prior to his death

ew details have been overlooked in

the design of the new Sarnia centre. The front, or "core" section of the 38,000-square-foot building is on two levels and contains offices, meter section, locker room, lunch room, fullyequipped kitchen and an assembly room. The latter provides ideal accommodation for those occasions when the centre's staff of about 45 is required to assemble, or for after-hour staff get-togethers. A public address system with taps for a record player and conveniently located outlets for projectors suggest the attention to detail in planning.

It's the same story in the garage, maintenance and storage areas. From the overhead crane to the automatic lift triggered by trucks backing up to the unloading platforms, the emphasis is on detail. Large diameter water mains make it possible to flush down the garage floor to a central gutter in a matter of minutes. Even a spray booth has been provided for the maintenance of the utility's fleet of 29 vehicles.

Electric heating is employed through the steel-framed, brick veneer building. Heating cables are imbedded in the basement level floors and in the concrete aprons outside the garage doors to prevent ice build-up. Baseboard units heat the offices, meter shop and assembly room while ceiling-mounted blower units are used elsewhere.

Metered separately and provided with an automatic cut-off to avoid system peak load operation, the heating system represents a total load of 624 kilowatts. Three separate air conditioning units provide year-round comfort in the offices, meter shop and assembly room.

Efficient and complete, the John T. Barnes Service Centre is far more than a tribute to a leading civic figure. It is a fine tool designed to assist a devoted and competent staff to provide the best possible service to its customers.



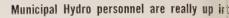
in 1949, Sarnia customers received their first rate increase since the system was initiated as a municipal enterprise. To illustrate growth, he compared the utility's load of 746 kilowatts in 1916 with today's 130,000 kilowatts.

Mr. Barnes called the installation of the underground distribution system in the downtown area, and the up-grading of street lighting "two of the outstanding features of Sarnia Hydro's betterment program started in 1946." He said maintenance costs had been reduced by the underground installations and continuity of service improved. "In the last five years", he noted, too, "most subdivisions have been assuming the extra cost of underground wiring

to gain the benefits of quality installation — thus improving the value of their homes."

In explaining the high electrical consumption in Sarnia in relation to population, Mr. Barnes said it was due principally to the vast usage of energy in the electrolytic process in making certain types of chemicals. This meant that there was very little diversity in the system load "which had an extremely high 'load factor' of 93 per cent."

Mr. Barnes concluded the interview with an understatement. "Sarnia Hydro is moving ahead," he said, "keeping pace with community developments and with the firmly established trend to modern electrical living."





HYDRO HIGH SCHOOL

It was back to school for many employees of Ontario's municipal electrical utilities who trooped to the classrooms in May and June to lear all about the safe handling of mobil aerial baskets — those ungainly looking, sky-probing pieces of equipmer which can perform so much in the hands of skilled operators. The two day series of safety and training courses was conducted by the Electrical Utilities Safety Associatio (EUSA) at Ontario Hydro's Conference and Development Centre, Niagar Falls.

The original concept of the aeria basket (or bucket) is said to hav originated with the fruit growers of British Columbia who were responsible for the development of such machine for cherry picking. The po



tential of this equipment as an electrical utility tool was soon realized and, with extensive improvements and refinements, they have been adapted to line work, street lighting maintenance, tree trimming and, more recently, to bare hand maintenance on sub-transmission circuits

Estimates indicate that some 48 Ontario utilities are employing at least one aerial basket or radial arm derrick with basket attachment and the number is growing rapidly. As Percy Tomlinson, general foreman with the Sudbury Hydro-Electric Commission explained in an interview during the course: "More and more emphasis will be placed on mechanization in utility operations in the years ahead. We feel it's wise to learn all we can about the latest equipment to prepare for the day when it becomes available to us."

In reviewing the background leading up to the course, Bill Dukelow, assistant manager of EUSA, said:

"Changing work methods and better equipment have meant that more echnical knowledge is required by atility personnel. At a safety seminar three years ago it was agreed that courses should be conducted in the use, maintenance and safe practices of aerial basket equipment. This suggestion was supported enthusiastically by the OMEA, the AMEU and Ontario Hydro, who gave us the go-ahead to organize the classes."

Pilot courses were carried out nearly two years ago, regular classes were held last fall and the third series has just recently been completed.

"A mobile aerial basket is an intricate piece of equipment", Bill pointed out. "It costs anywhere from about \$15,000 to \$30,000 and it's not the sort of thing you can drive off to the job like a new pick-up truck. Both operational and safety procedures must be thoroughly understood and rehearsed before the equipment is put to work. And its full potential will only be realized through experience."

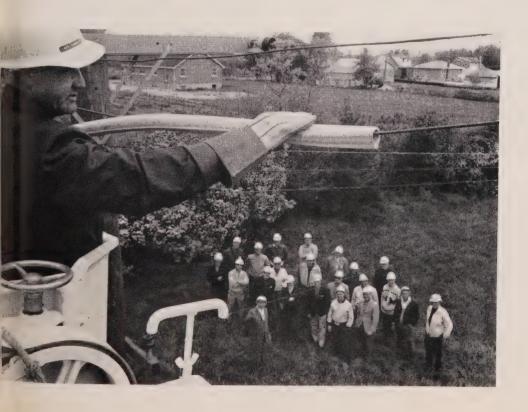
For the students, the two-day course is tough, but interesting. Subjects include the history of aerial baskets, power hydraulics, maintenance and safety. "We take the men into the field on their second day and give them practical experience with the equipment. We try to let each man go

up in the baskets at least once," said Bill.

Gerry Delaney, superintendent of Espanola Hydro and his foreman Don Sunstrum, commented: "The aerial basket is revolutionizing our work methods with overhead lines. Our commission just bought an aerial rig and we foresee many advantages; the two most important being, perhaps, efficiency and economy."

While no definite date has been set for the next aerial basket instruction, it will likely be held this fall, depending on demand. Said Bill Dukelow: "We are organizing and compiling two additional courses covering live-line techniques and underground construction. We hope to have one of these underway this fall."

The idea of going back to school seems to be catching on among the utility men. During the four courses on aerial baskets held this spring, for instance, average attendance was about eighteen. In the interest of safety and efficiency it's quite conceivable that the EUSA curriculum may be expanded to cover many other aspects of utility operation.



"MEANEST DRIVIN' RIVER IN CANADA"

madawaska

by NICK NICKELS

The largest Ontario tributary of the Ottawa River rises gently in the wilderness hush of mid-Algonquin Park but the precambrian shield country soon gives it life and direction

Living up to its violent reputation, the Madawaska — the "mad waters" of the Algonquin Indian — races through deep gorges, cascades over rock ledges, floods into small and large lake chains and marshes and meanders across a clay plain to its destination — Arnprior. Here, after 160 riotous miles, the river is swept imperceptibly away on the broad expanse of the Ottawa.

Few outsiders know the Madawaska. It is the last remaining "remote" river system in settled Southern Ontario as few stretches of good highway parallel its course to entice the stranger. But the rough, often unmarked side roads that snake through its deep-cut valleys delight the curious wayfarer with breathless prospects so that the Madawaska region is among the last hold-outs for the explorer who prefers not to stray too far from home.

Perhaps nowhere in Canada are there finer square timber and log houses, barns and churches and a wealth of intriguing settlement and lake names. They invariably reveal the ethnic origins of the settlers:

The Indian sounds of Madawaska, Kamaniskeg and Weslemkoon; the Irish of Ireland, Maynooth, Mount St. Patrick, New Carlow, Letterkenny, Calabogie and Killaloe; the Scotch influence of Fort Stewart, Denbigh and Arnprior; the English of Bancroft, Whitney and Combermere; the French of Baptiste, L'Amable —

there are two of these — and Papineau.

The people of the Madawaska region are engaged in farming, lumbering and small business. The hardscrabble upland mixed farms carved from the sandy "loom" of the great pinery clearings make a marginal living for their owners. But the farms of the lower clay plain are fertile and the people prosperous.

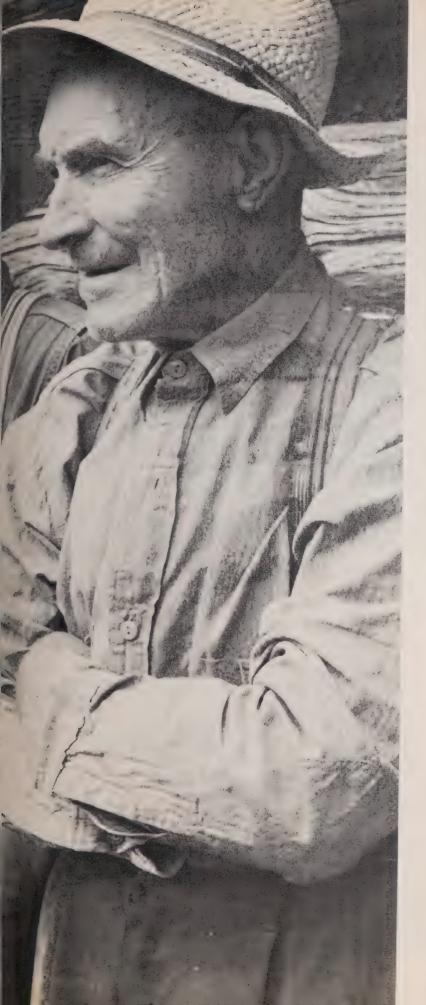
Lumbering these days is confined chiefly to pulp. Mining for graphite, corrundum, industrial garnets, iron and uranium has come and gone with fortunes lost and made.

The riches of the Madawaska are of the past, materially in lumber and minerals and immaterially in the song and stories of the river's most colorful era, when the great white pine was king. Even this wealth of legends is in grave danger of becoming dissipated, for the recording of them has been sadly neglected. Often all that remains is in the minds of the old men of the river like Jim Taylor of Boulter.

The undisputed river boss of "the meanest drivin' river in Canada" for 50 years, clear-minded Mr. Taylor lives two-thirds of the way down the Madawaska on the great north-south plateau above the forks of its York and Little Mississippi Rivers branches. Jim Taylor is a trim, alert man of 83 years who stores a glittering treasure of river lore behind almost sightless eyes. Indeed, the river almost blinded him completely when he had barely attained his virile working stride. Mr. Taylor is not bitter about the mishap or any of his (continued on page 14)

Undisputed "river boss" of the Madawaska for many years, Jim Taylor, far right, is of the era when pine was king. With him is his brother Henry who builds birch bark canoes.





HYDRO RETURNS TO THE MADAWASKA

After an absence of 15 years, Ontario Hydro is turning once again to the historic Madawaska River which it has harnessed twice in the past for power. And this project will far exceed the combined output of the earlier plants.

Located at Mountain Chute, 22 miles southwest of Renfrew, the development will get under way this summer. It will provide 160,000 kilowatts and cost an estimated \$27.7 million. Both units of the new development are scheduled for service in December, 1967.

Ontario Hydro derived its first power from the Madawaska as far back as 1929 when it purchased the small (4,000 kilowatts) Calabogie plant from the M. J. O'Brien Company. Barrett Chute was built by the Commission's own forces in 1942. Located four miles from Calabogie, this station has a capacity of 40,800 kilowatts.

Most ambitious of Hydro's past construction efforts on the Madawaska was Stewartville Generating Station, seven miles west of Arnprior. Completed in 1949 at the height of the Commission's vast postwar hydro-electric construction program, this development has a capacity of 61,200 kilowatts.

Preliminary surveys and engineering studies of the Mountain Chute development have been completed and first work crews are expected to be on the site by late July or early August. A peak force of between 500 to 600 men will be required. Most of these will be hired locally and because of the accessibility of the project, on-site living accommodation will not be necessary.

About 5,500 acres will have to be cleared of trees for the head pond, which will cover about 7,500 acres. The project is expected to require some 250,000 cubic yards of concrete.

The Madawaska is one of the few remaining rivers in Southern Ontario whose power potential has not been fully developed. Other possible sites are Claybank and Highland Falls, while the Barrett Chute plant could be enlarged. Whether or not these sites will be developed will depend largely on electrical requirements at times of peak demand on the Hydro system.



Located seven miles west of Arnprior, the Stewartville plant, above, was completed in 1949. Mountain Chute will eclipse it in size.

lifelong hardships, for the people of his generation would not have accepted the Madawaska on any other terms.

"The Taylors are Scots by way of Northern Ireland," Jim explains. "Grandfather Robinson Taylor joined General Brock's army shortly after he came to Canada. His brother, a professional soldier and veteran of the Crimean War, came here, too; that's his cavalry sabre hanging on our living room wall.

"Father married Marion Stringer of White Lake settlement, once part of the domain of the infamous Laird of McNab. They lived for a while at Little Ireland" — Mr. Taylor nodded towards the distant hills to the south — "and then built a cabin four miles from where we are now sitting.

"I was the eldest of ten children. With father away in the woods and on the drives most of the year round, mother had a rough time of it, as had all pioneer wives in the Madawaska country.

"She made a happy home, though, bore her children with the aid of neighbouring midwives, spun, knit, wove and baked, herded the cattle in the woods and, when required, acted as midwife, doctor and, yes, undertaker. She lived hale and hearty until the age of 94.

"Schooling? There was no school within miles when I was a lad. But I learned to sign my name at an early age. If my education was short on book-learning it was long on the life work at hand. I learned the ways of the woods by listening to my elders, the way small boys these days listen to the radio or watch the television.

"Grandfather Taylor was an expert square timber man. Trimming the big sticks oversize with a broadaxe, he rode many the drive to Quebec where the same timbers were shaved down again to remove stone bruises before loading them into the holds of British ships.

"Father was a sawlog man. I started in the woods at the age of 13, scoring ties for 75 cents a day, and at 16 went down to Hull with my first drive. It wasn't long until I was foreman and finally river boss, for years with McRae Lumber Company. I took my last drive down river in 1943; pulpwood.

"Fifty years working on the river puts a stamp on a man . . . "

The stamp of the Madawaska hit Jim Taylor hard at the age of 23 years. While heaving a monstrous hung-up log from the river bank into the water "the strain burst some blood vessels behind my eyes." Blinded temporarily he spent many weeks in hospital. The damage affected his "near sight" but he claims his "far-





In boulder-strewn fields northeast of Com ermere, wayside shrine, top, proclaims fat of Polish farm folk. Raising sheep, shea ing them, spinning the wool and knitti garments is still a way of life in some par of the Madawaska. Marie Recoski of Ha Way settlement is shown shearing and spining. Log buildings like the old church Black Donald, right, abound in the distric





off sight" was as good as ever, for many years.

The tough life moulded tough men. The English, Scots, Irish, French-Canadian, Polish and German lumber jacks were honed to fine physical shape. Living in close proximity in the camps, working long hours in the woods and waist deep in ice water during the spring drives built up personal grudges to the explosion point, especially when the drives reached the settlements where cheap whisky quickly triggered trouble.

And there were drownings aplenty. It was a rare lumberjack who could swim. At Limestone Rapids almost 100 rivermen lost their lives. Burial was a hasty ritual with a doffed hat and the sign of the cross by the Roman Catholics the only benediction. The grave was lined with birch poles and the corpse enclosed in a blanket.

There is one burial spot, according to Mr. Taylor's memory, where eight boatmen, drowned when their craft upset in the current, "were buried ashore in their boat in rowing positions."

Still there, too, on the slopes of the Madawaska are many other people who played an important part in the golden age of the river. Colonizers' descendants everyone, their hard exteriors hide deep sentiment and warm hearts. If they lived frugally in their heyday they were wastrels beyond conception when it came to timber.

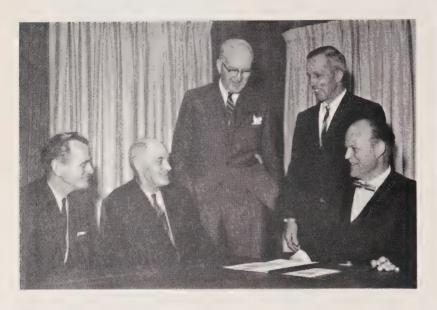
"If she's got more'n three knots in 'er, leave 'er lay," was the grand gesture of the day that brought a reckoning all too quickly to the great virgin pine stands of the Madawaska country.

And so, as the forces of Ontario Hydro prepare to move in again on the dauntless waters of the Madawaska — this time to convert the energy of Mountain Chute to electric power — the tough, comfortless folk who broke the wilderness live on beside their river in the glories of the past — but heedful of the brighter future.

Mitchell is

Handsome new PUC Headquarters takes the future into consideration.

Ready to Grow





New centre, above, brings all utility functions under one roof. Members of the proud Mitchell commission are shown, left, with Ontario Hydro Chairman W. Ross Strike. From the left are: Clark Moses, manager; S. D. Smyth, commissioner; Mr. Strike; H. A. Cook, mayor and W. J. Isaac, chairman.

Ever wonder where the referees get their endless supply of pucks when hockey is in full swing from coast to coast?

Chances are they come from the town of Mitchell where 90 per cent of the hockey pucks used in Canada are turned out. The same company produces much of the body rubber employed in the manufacture of automobiles. Insulated building materials are another product shipped in quantity from this Highway 8 community of 2,400 residents, 13 miles northwest of Stratford.

Naturally enough there is a good deal of pride in these and other industries, as well as in the town's diverse amenities and facilities which help make it "a good place to live and work." Latest of these is the ultramodern Public Utilities Commission building, ceremoniously opened May 27 when Ontario Hydro Chairman W. Ross Strike, flanked by W. J. Isaac, PUC chairman and Mayor Harold Cook, snipped a red "Live Better Electrically" ribbon at the entrance.

The \$60,000 building brings all the activities of the commission under one roof for the first time since 1933 and is designed to serve the needs of a three-fold increase in population. As

Clark Moses, PUC manager-secretary put it: "I've attended many an opening of new utility buildings and some were outdated the day they were opened. According to the growth pattern in recent years, Mitchell's population will reach 4,000 within 20 years. We are ready to serve it."

Adjacent to the electric substation, waterworks pumping and filtration facilities, the new office and service centre building contains 6,000 square feet of floor space on two levels. The concrete block building is faced in front with Indiana limestone and brick.

On the main floor is a garage, workshop, stores area and employees' locker room. The general office area includes a service counter, display section and manager's office. To the rear of the building is a spacious board room, staff room, tool room, meter room and superintendent's office. Gleaming washrooms complete the area. The basement contains a loading dock, storage space for heavy equipment and materials, and a vehicle parking area.

The entire building is electrically heated with the 3,000-square-foot garage sections employing electric blower type resistance heaters. The remainder is heated and cooled by an air-to-air heat pump.

General lighting is from fluorescen units which provide an average of 100 footcandles at working level. The mair office, manager's office and board room feature ceiling panel lighting.

Recalling the history of the municipality, Mr. Strike told the gathering that Mitchell signed a contract with the Ball Electric Light Company, in 1888 to provide lighting for eight arc-type street lamps which cost \$600. These lights were on from sunset to 11 p.m daily, and until midnight on Saturdays

Mitchell, he said, had been in or the ground floor of public power in Ontario. Three or four months before the lights went on in Berlin (Kitchener), in 1910, an engineer had been on the scene in Mitchell to assess service for the town. The following year first power was supplied by Hydro.

Hydro's Western Region manager Gordon McHenry commended Mitchell as "one of the most progressive

utilities in the region."

As symbolized by its new PUC building, Mitchell looks forward to the future with confidence. With more than a dozen houses electrically heated and one new water heater rental customer signed up every third day for the past 17 months, there is cause for optimism.

CONFERENCE DESIGNED FOR MANAGEMENT

Record attendance highlights AMEU summer conference in Muskoka

Almost 500 utility representatives and their wives from across the province attended the annual two-day summer conference of the Association of Municipal Electrical Utilities held recently at Bigwin Inn on Lake of Bays.

They were brought up to date on subjects ranging from heat pumps to vehicle maintenance and from safety legislation to load promotion at concurrent, day-long sessions. Most came back for more in the evening when the speakers were on hand to talk shop and help delegates with specific problems.

The Law and the Utility

Leading off the business agenda, J. Palmer Kent, Q.C., counsel for Toronto Hydro, gave a very useful summary of legal considerations affecting public utilities. Among the points he touched upon was that section of the Municipal Act dealing with conflict of interest. He said a utility representative must reveal any pecuniary interest he may have in possible conflict with his position with the utility and he is bound to avoid voting or taking part in discussion on subjects where such conflict might be deemed to exist.

In a lucid explanation of the complex relationship existing between the municipality, the

municipal council and the public utility commission, the speaker cited several legal precedents to help delegates comprehend the status of the utility in a variety of situations.

Mr. Kent listed the various acts affecting utilities, named reference sources, and urged that each utility appoint a member of the staff to file, record and keep abreast of changing legislation.

Conversion Heating

A step by step analysis of the potential market for electric heating as represented by the conversion of existing homes was conducted by a panel of five Ontario Hydro experts who probed the weaknesses as well as the strong points.

In assessing the market potential, panel moderator W. L. Scott, home heating sales officer, told delegates that long range forecasts made in 1959, predicting that there would be 32,000 electrically heated homes by 1967 in Ontario, "have been right on cue." He cautioned, however, that if the forecasted growth rate was to be maintained, 50 per cent of the electrically heated homes connected during 1967 would have to be conversions.

He said the homes built from 1946 to 1952



A regular business session at the Conference Designed for Management? No — this photograph was taken at 10 p.m. and the eager beavers shown were attending an extra-curricular "bull session" at which the program speakers assisted delegates with specific problems.



Comparing notes near the end of a very successful conference, these members of the program committee are, left to right: E. F. Burbank, Toronto Hydro; James Hammond, Hamilton Hydro, AMEU president; John Torrance, Etobicoke Hydro and A. G. Stacey, Guelph Board of Light and Heat.



This reproduction of an accident situation helped keep safety on delegate's minds. Examining the display are EUSA president Art Taber, left, and Harry Flack, manager.

were "the prime target area" for conversions. A total of 197,000 detached homes were built in that period, of which 147,000 were in urban areas. Some 10 cities accounted for 97,400 of these homes.

"The conversion market must be approached with a policy compatible with the desires and needs of the customer, utility, and the industry in order to achieve any measure of success", the panel moderator concluded.

Central Systems

Sketching the kind of electric heating equipment available for the conversion market, Peter T. Parker, home heating sales supervisor, drew attention to the increasing interest being shown by furnace manufacturers and the installing trades in entering the market with central electric systems.

"Recognizing this," he said, "we are urging them to develop equipment which can take full advantage of electricity by offering customer benefits greater than those offered by our competitors. These systems can be expected to provide continuous air circulation, provision for summer cooling, electronic (electro-static) air cleaning, humidification and exfiltration."

On the other hand, he stressed the importance of convincing the electrical manufacturer, distributor and contractor that the heating market was large enough for both electrical and traditional heating industries.

"We believe," he said, "that the electrical industry should supply and install presently available unit systems and that the plumbing, heating and sheet metal trades should take care of the ducted and hot water systems."

Load and Rates

Delegates were acquainted with some of the

load and rate problems associated with the conversion market by E. G. Phillips, load analyst of the Rate Research Department. He dealt at some length with the central furnace system with off-peak controls — a method in which there was a growing interest.

The speaker pointed out that the concept of control used for water heaters could not be applied directly to electric heating and that thermal storage was a definite requirement. He felt that the storage unit would be required to maintain full temperature in the house for up to four hours.

Mr. Phillips stressed the need and difficulty in establishing the availability of off-peak power in conjunction with the development of this market.

"The question of availability, therefore, is perhaps the most important and certainly the most complex of the problems", he said. "The AMEU Rates Committee is preparing to look at this and other problems in the near future. They will be considering the rate at which this load might be expected to grow and the problems the utility will face if the growth is not controlled.

"Parallel investigations are required in the development of storage units", he continued, "standards of performance for customer comfort, and regulations regarding the duration and times of control to meet both the utility's and Ontario Hydro's needs. Information will be required for designing the promotion of this load if we are to gear the rate of growth to the availability of off-peak power in the future."

Satisfaction and Heat Pumps

Speaking on customer satisfaction R. N. Leadbeater, home heating sales supervisor,

noted that financing represented the most effective quality control measure available in the new housing market. He said that mortgage companies, by and large, would not finance electrically heated houses that did not meet Triple Seal standards. He believed that a similar set of quality control standards and measures must be developed for the conversion market.

In describing how the heat pump fits into the conversion picture, G. H. West, engineer, utilization and electro-thermal studies, concluded that the residential air source heat pump would not be a major factor in capturing the large conversion market chiefly because of its high first cost. "As I see it," he said, "the heat pump is limited to those houses where the customer has a strong desire for summer air conditioning and the present heating plant is near the end of its useful life."

Meter Verification

Directing his remarks to the group of utilities "between the very large and the very small", J. Bruce Annand, manager of the Oshawa Public Utilities Commission, discussed the pros and cons of contracting out meter verification work. He felt that some might be considering this step in the light of rising costs. Acknowledging the difficulty of compiling a convincing list either for or against letting others do this work, he said that comparative costs must be the deciding factor.

Mr. Annand outlined the many considerations to weigh in deciding whether or not to contract meter work but he warned that each utility must arrive at its own cost figures in the light of its particular circumstances. He estimated that a utility would have to service







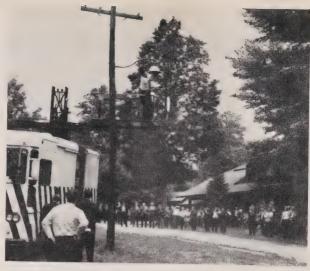
J. B. Annand

F. L. G. Askwith

J. J. Lowry



Principal speakers included, top photos, J. B. Annand, Oshawa PUC; F. L. G. Askwith, Ottawa Hydro, and J. J. Lowry, Toronto Hydro. Panel on electric heating, above, includes, left to right: Roy Leadbeater, G. W. West, Peter Parker, Bill Scott and E. G. Phillips - all of Ontario Hydro.



M. E. Mitchell of Muncie, Indiana, brought this unit to conference to demonstrate his firm's unique street light service. With its two-man crew, the lift truck can average one lamp per minute in normal servicing. Firm claims to service 600,000 lights for U.S. utilities.

about 4,000 meters annually to justify the full-time services of a meter technician.

Load Studies

Delegates to the summer conference were particularly interested in the report presented by J. J. Lowry, Toronto Hydro, in co-operation with the Load Survey Committee of the AMEU. Mr. Lowry described the methods and initial results of load surveys of an all-gas subdivision in North York and a Medallion subdivision in Toronto Township. Their purpose, he said, was to provide the design engineer with the limits within which he must plan his distribution and substation facilities.

While it was too early to draw definite conclusions from the load and appliance data obtained to date, the speaker said: "the expected large spread in demand per customer for the all-gas subdivision and Medallion subdivision has been partially confirmed" He felt that additional subdivisions representing load mixtures between the extremes currently being examined would have to be surreyed if the distribution engineer was to eceive the necessary aids for wise planning. Mr. Lowry noted that load data presently wailable was limited in usefulness because of he lack of detailed information it contained in the character of the load. "For this reaon," he concluded, "the two test areas now eing surveyed will become extremely useful s historical reference points in the future." oad Promotion

On behalf of the Load Promotion Committee f the AMEU, J. A. Williamson, manager, iagara Falls Hydro, gave a unique presentaon in the form of a "theoretical exercise". was based on the premise that "nothing e have done in the past exists" and that a

load building policy had now to be established from scratch.

The speaker examined each pertinent factor from an impartial view of the product ("a kilowatt-hour is a unit of electrical energy multiplied by time") — to the market potential, availability of facilities, sales media and competition. The committee report then moved on to the development of principles, procedures and guide posts.

Among them: the necessity for close cooperation between the municipalities and Ontario Hydro; in the administration of the program, channels of communication should be through the Regions; as spokesmen for the utilities, the OMEA and AMEU should be in constant touch with Ontario Hydro.

"The various municipal idiosyncrasies," the report continued, "which are due to the autonomous position of the local utilities, is in some respects detrimental to an overall promotional effort and it is felt that every effort should be made to have the utilities co-operate in their programs to eliminate too many variations. On the other hand, the central body, Ontario Hydro, must recognize and deal with this situation in a practical way."

On ethics, the report agreed that these adjectives should be descriptive of all promotional efforts: "honest", "intelligent", "aggressive", "positive" and "factual".

Prime target areas for promotion as defined in the report, were the industrial and commercial fields. The residential area was regarded as the most difficult to promote because of the number of people concerned. "It is perfectly obvious", the report continued, "that house heating and, secondly, water heating should carry the brunt of the attack

in regard to residential promotion."

Advertising media were not neglected and the committee felt that the following precedence should prevail in their use: stuffers, newspapers, bill boards, radio and television. Employee support in the sales effort was regarded as vital and communications were described as the key to success in this

Mr. Williamson said it was the committee's view that the whole exercise be reviewed at least once a year. He urged the assistance of all the utilities and asked for suggestions. "We have to know more about your attitude to this program", he concluded.

Other convention highlights included an amusing and informative skit "The Bargaining Table — Midlake PUC", produced by the Labor Relations Division of Ontario Hydro: and a panel discussion "Know Your Competitor", moderated by Don Ramsay of Ontario Hydro. Panel members included J. F. Anderson. Learnington, N.H. MacKinnon, Sudbury, and Alexander Christie, North York.

The following speakers and their subjects were also featured on the convention agenda: "Higher Distribution Voltage" — Harry Prevey. Canadian General Electric; "Preventive Maintenance for Vehicles" - Alex De Majo, Ontario Hydro; "Using the AMEU Guides" -F. L. Askwith, Ottawa Hydro; "Welding Loads and their Effect" - William Torok, Ontario Hydro; "Contract Specification" - R. L. Hicks, Toronto Hydro; "Cable Fault Location" - C. J. Pompura, Northern Electric; "A Utility Street Light Service" - M. E. Mitchell, Mitchell Maintenance System; "A Review of Provincial Safety Legislation" — C. Grant Gibson and James McNair, Department of Labor,

OFFICE GROUP MEETS IN BROCKVILLE

Deposits and change of occupancy charges among subjects discussed

Over 100 representatives of various utilities from Oshawa to the Quebec border attended the 13th annual conference sponsored by the AMEU Eastern Ontario Division's Accounting and Office Administration Section, held in Brockville recently.

This year, the successful two-day meeting was directed by Roy Longbottom who was succeeded as chairman by A. W. "Bud" Moore of Oshawa. Completing the 1964-65 committee are Roy Wright, Ottawa, vicechairman; Jim Fooks, Kingston, secretarytreasurer and John Borrowdale, Oshawa, director.

Donald Beach of the Canadian Tax Foundation reviewed the recent changes that affect sales tax responsibilities of the utilities and he described the steps to sales tax control when considering a utility as a vendor, manufacturer, contractor and municipality.

Miss Mary West of Ontario Hydro's Law Division commented on the effect of the Bankruptcy Act on public utilities' operations.

It's all quite legal as this trio found out in a chat with Mary West of Ontario Hydro's Law Division. Left to right are: Clare Campbell, Ottawa; Dave Gardiner, Perth; Miss West, and Jack Gillespie, Brantford.

In her summary she said it was her belief that where the owner had incurred the arrears, the utility is a secured creditor whether or not the arrears are on the tax roll. She warned, however, that a prior mortgage will have priority and if there are insufficient assets to satisfy both, the claim for the utility rates will be unsecured.

"In order to avoid these difficulties," she concluded, "you may consider it advisable to take a deposit as security for payment as a condition of service. If this is done the utility will be a secured creditor and as such is entitled to realize its security quite apart from the so-called lien section of the Public Utilities Act."

Another highlight of the convention was a speech by Ron Taylor of St. Catharines PUC on customer deposits and change of occupancy charges. He commenced with a description of the customer deposit system implemented by his utility prior to 1959 when a change of occupancy charge was substituted.

Among the problems encountered with the deposit plan were computation of interest; insufficient deposit to cover the final bill; or, worse still, those cases where a small credit balance remained. "After five years we are still trying to refund some of these credits." he said.

The change of occupancy charge of five dollars was substituted in 1959, for resi dential customers only, chiefly to simplify record keeping. Mr. Taylor noted that the change of systems, from deposit to change of occupancy charge, must bear Ontario Hydro approval.

"From our experience in St. Catharines the change of occupancy charge has been good. When we changed to this system we realized that we no longer would have a deposit to apply to a customer's final bil and this caused us to tighten up on our collection and cut-off procedure. This system has also saved us considerable office work and is easy to explain to the customer," he concluded.

Other speakers included John Fitzgerald of Woods, Gordon and Company, S. J. Dixon Ontario Hydro, and G. Stickney of the Stratford Public Utilities Commission. The closing lun cheon was addressed by H. Pearson Gundy librarian of Queen's University.

Members of the 1964-65 committee, left to right are: Jim Fooks, Kingston, secretary treasurer; Roy Wright, Ottawa, vice-chair man; Roy Longbottom, Ottawa, past chair man; John Borrowdale, director, and Bud Moore, chairman — both of Oshawa





OMEA DISTRICT CONDEMNS SELECT COMMITTEE REPORT

The abolition of public utilities commissions, as recommended in a recent report by a Select Committee of the Ontario Legislature, was strongly protested by District 5, Ontario Municipal Electric Association at its recent summer meeting at Niagara-on-the-Lake. Utility representatives from the Niagara Peninsula and adjacent areas unanimously condemned the report as "a most retrograde step in municipal government operation."

The report, compiled by the Select Committee on the Municipal Act and Related Acts, suggests that the functions of a utilities commission be performed by the local municipal council.

Andy Frame, chairman of Burlington PUC, said that few utilities knew of the study until t was concluded. He understood that councillors had argued before the committee that hey were responsible for utility management lecisions since councils control the budgets, while utility administration is carried out by

Dundas PUC was out in force as this photo uggests. Shown between sessions, left to ight are: John Wilson, manager; Bert Boyle, consumer service; Bill Newitt and Ael Jaggard, commissioners; Stan Heyrood, Niagara Region and Doug Gordon, Intario Hydro's assistant general manager, tarketing.

professional staff. The committee had not heard contrary arguments as the OMEA was not represented at the hearings and no utility representatives had been present.

"Our objections are not just a matter of self-preservation," said Mr. Frame. "They are in the interests of sound policy and administration."

The protest, which took the form of a resolution, urged strong opposition by the OMEA and Ontario Hydro to the Select Committee's recommendation, and suggested that representation be made to the Ontario Parliament. It was passed unanimously.

A new approach at the meeting was a discussion on "subjects of most concern to commissioners." Delegates were polled on this in advance.

Dr. J. D. Fleming, chairman of Dundas PUC, said that the vast majority of replies expressed interest in what might be termed "commissioner education." Topics dealt with during discussion ranged from load building to advertising and promotion. Dr. Fleming suggested that consideration be given to holding a series of evening education courses or seminars for commissioners. These might include public speaking courses to help overcome the reticence of some delegates to voice their opinions.

C. W. Palmateer, manager of advertising and marketing services for Ontario Hydro, outlined promotional programs being undertaken.

H. A. Smith, Hydro's assistant general manager, engineering, speaking on bulk power supply, was asked to comment on the proposed diversion of the Harricanaw River from James Bay to the Great Lakes.

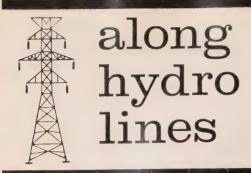
He said that as he understood it "this is not a net power production scheme." He regarded it as essentially a water supply scheme to the Great Lakes, and he thought the chief beneficiaries would be those concerned with navigation, and communities with growing water requirements.

Hydro, said Mr. Smith, is not in a position to commit manpower or dollars for any study of the scheme at present. He added that Quebec water was involved and that such a project would require agreement with a large number of authorities.

Out of town visitors are welcomed to Niagara-on-the-Lake by host commissioners. Left to right are: Lt. Col. A. A. Kennedy Ontario Hydro commissioner; Dr. V. S. Wilson, Etobicoke; John McMechan, OMEA president; Lord Mayor G. R. Wooll; R. W. Howarth, chairman, and W. S. Jennings, commissioner.







Sarnia Hydro Chairman Dies



Hydro circles throughout the province were saddened by the recent death of E. W. (Curly) Allen, chairman of Sarnia Hydro and a member of the commission for more than 17 years. The 73-year-old Hydro veteran died in Calgary while on a motoring holiday.

This photograph of Mr. Allen was taken at the official opening of the utility's new service

centre, June 8, at which he played a leading role.

Mr. Allen served on the Sarnia Hydro commission from 1930 to 1941 when he left to work in a defence industry in Quebec. He returned to Sarnia after the war and served on the commission again from 1959 until his death. He had been chairman on four previous occasions.

Among the survivors are his wife, Matilda, and four children.

Seek Public Confidence

Approximately 240 scientists and engineers from six countries heard the need for public understanding of peaceful nuclear development stressed at the fourth annual conference of the Canadian Nuclear Association held recently in Toronto.

President of the association, Ian F. McRae, urged member industries in the nuclear field to instill public confidence, a keynote reflected by principal speakers throughout the three-day conference. J. Lorne Gray, President of Atomic Energy of Canada Limited, in his address stated, "We who are in the nuclear business are not worried about operating nuclear plants, but we understand why the public may be apprehensive. This will only change with time and with repeated demonstration of the safety of nuclear plants and we intend to demonstrate their safety.'

One of the most effective meetings of the conference, a panel chaired by J. A. Blay, director of public relations for Ontario Hydro, analyzed public attitudes to nuclear power and discussed means by which the public could be educated in this respect. Ontario Hydro was represented at this session by Dr. D. K. Grant, director of medical services, who was among those discussing radiation education.

Concluded Dr. Grant, "... the public in general i poorly informed and there is a great need to establish a positive program of education about ionizing radia tion and its effects on living creatures. Uncontrolled radiation, like fire, can destroy, but if properly con trolled and treated with respect using adequate pro tective measures, radiation like fire, can and will be a potent and vastly useful servant to mankind with out endangering the health of present and future generations." On the last day of the conference, dele gates visited the Douglas Point Station and reactor at the University of Toronto and McMaster University as well as several industries manufacturing nuclea components.

Ian F. McRae, chairman of the board, Canadian General Electric Company was re-elected president o the association at the annual meeting held during the conference. R. W. Macaulay, former vice-chairman o Ontario Hydro and Minister of Energy Resources was re-elected vice-president. J. C. Lessard, president of Hydro Québec was also elected vice-president.

She Holds the Record



It's rare for a person to achieve half a century of service with any one organization but when a woman devotes 51 years to her job, it's even more unusual Such is the case with Marion Lillie, recently retired secretary to Edward Vigars, manager o the Port Arthur PUC. Over the years Miss Lillie has been sec retary to four general manager of the utility including M. M.

Inglis, W. Brackenreid, and Ralph Chandler (retired and now with the Lakehead Harbor Commission.)

When she began work in 1913, as a clerk-typist there were nine on staff. Presently, the commission employs 48 persons. At a banquet held in honor o both Miss Lillie and James Willis, who had been witl the commission 24 years, Chairman David Nattres presented her with a gift of money and a copper scroll adding that few will be able to equal her record.

Service Is the Key

A golden key will now automatically open the door to any public function in the village for Alfred Menary and William Baker, two long service councillors of the Grand Valley Hydro System. Councillor Elgin West i shown presenting the out-sized keys to Mr. Baker left, and Mr. Menary.

The two men were honored at a testimonial banque attended by some 300 friends, including Ontario Hydro Chairman W. Ross Strike, who was among the speak ers. Mr. Strike praised the merits of men like Mr Menary and Mr. Baker, "who dared to stand up fo the ideals in which they believed." Together the two Grand Valley Hydro veterans have 60 years o service. Grand Valley is west of Orangeville.

Alfred Menary was first elected to council and the Hydro committee in 1915. A former reeve of Grand



Valley and warden of Dufferin County, he was secretary-treasurer of the local Hydro from 1925 to 1958. Mr. Menary retired last year from the town council, which administers the Hydro system by committee.

William Baker has served as a member of the Hydro committee in Grand Valley for 32 years. Now 81, he was elected last December to another two-year term as village councillor. He is a former reeve.

Ridgetown Hydro Veteran Retires

It was with mixed emotions that more than 200 persons gathered in Ridgetown recently to mark dual milestones in the area's Hydro history. They came to say goodby to Earl Hodgson whose retirement as manager of Ridgetown ROA brings a 46 year Hydro career to an end. He was also manager of the Ridgetown Public Utilities Commission. The second event was the presentation of a safety award to the Ridgetown area staff.

MUNICIPAL BRIEFS

Port Elgin Hydro played host recently to 130 Georgian Bay Municipal Electric Association members and their wives at a special meeting which included a tour of the Douglas Point Nuclear Power Station.

W. H. Moulton has been appointed manager of the newly-formed Nepean Township Hydro. A graduate of Queen's University, Mr. Moulton was with the Engineering Department of the London PUC before his appointment and had worked for several years as London Area supervisor for Ontario Hydro.

Twelve public speaking contest winners from various Mimico public and high schools were treated to a tour of the Henry Ford Museum and Greenfield Village, Dearborn, Michigan, by the Mimico Public Utilities Commission. They were accompanied on the trip by representatives of the schools and PUC members.

Gerald Coyle is the new Amherstburg PUC manager. He has been acting manager since the resignation of F. A. Bridle in April. Formerly line foreman, Mr. Coyle has been with the commission 23 years.

Etobicoke Hydro revealed in its annual report to council that it is continuing to encourage developers

to voluntarily assist in improving the appearance of new residential sub-divisions by sharing costs of underground distribution. A total of 3,568 new residential lots and multiple family units were serviced in 1963 of which 2,648 or 75 per cent were supplied by underground wiring. Developers are asked to accept the additional costs of the local distribution system, while the commission meets the full cost of placing the main 4,160 volt feeders underground.

Harvey R. Philip, assistant construction manager of North York Hydro since 1962 and former Trafalgar PUC manager for 20 years, died recently. Mr. Philip, 56, had been associated with Milton PUC and Hamilton Hydro before his Trafalgar appointment.

Ray Ewasiuk has been appointed treasurer of Toronto Township Hydro. He came to the utility this year from Etobicoke Hydro where he had been the accountant.

Markham PUC which presently shares office accommodation with the municipality is planning to move into a modern building, located next to the municipal offices. The new location will provide improved office and warehouse facilities.

North Bay Hydro is also among those utilities contemplating expansion of their office facilities.

Noting a bit of irony in the show window prepared by Milton Hydro during its golden anniversary celebrations, Manager O. L. Hadley pointed out that the 1910 stove on display was equipped with a wall receptacle, enabling the owner to move without having to disconnect any wiring. "They are trying to accomplish the same thing today," he said.

A total of 600 all-electric apartment suites are now in existence or under construction in Oshawa. Chairman Edward F. Armstrong, of Oshawa PUC stated that eight apartments with 93 fully-electric suites are in service, while 11 more apartments with 507 suites are under construction. J. B. Annand, general manager, gives much of the credit for this success to his sales department and to the local builders who are turning to electricity for heating.

By mid-June, only 56 of Ontario's 978 municipalities had applied for federal-provincial grants for Centennial projects, Ontario Government officials announced. Of the applications, only five had been approved by the Ontario Government and sent on to Ottawa for final approval. But inquiries had been received from 475 municipalities concerning the grants.

Galt PUC has approved the purchase of a new meter test board which can handle up to ten meters at a time. A tender of \$5,370 for the new board was accepted from a Toronto firm. Preston and Hespeler utilities will be invited to make use of the new facility.

William Freeman has been named manager of consumer promotions in the Electrical Bureau of Canada.

Mr. Freeman was formerly editor of a trade magazine serving the electrical utility and manufacturing industries. He will now be responsible for integrating such industry-wide promotions as "Medallion Home" and "Housepower" and for contact with provincial Electric Service Leagues.

Graham Farnell has been named manager of Georgetown Hydro. He will also hold the post of secretary-treasurer, a position he has held since 1962. Gerald McCallum, a veteran with 33 years service in the municipal electric utility field, has retired as superintendent of the Georgetown utility.

Lloyd Algar has been appointed assistant general manager of Oshawa PUC. A member of Ontario Hydro since 1955, Mr. Algar was district operating engineer at the Commission's head office prior to his Oshawa appointment.

North York and Chatham are among the latest utilities to make underground wiring mandatory for all future residential subdivisions.

James Beadle has been appointed manager of Newmarket Hydro, filling the vacancy left by the death of William Young in April. Formerly with Ontario Hydro's Central Region Lakefront Operating Area, Mr. Beadle is a graduate of the University of Toronto in electrical engineering.

Hydro General Manager Named CEA President



Ontario Hydro's General Manager J. Mervyn Hambley was elected president of the Canadian Electrical Association at its recent annual convention in Banff.

He is the first Hydro executive to be named president of the association, which was founded 73 years ago. He succeeds Donald A. Hansen, general sales manager of Calgary Power

Limited.

The CEA, which has some 1,700 members across the country, is devoted to the advancement of the electrical industry. It includes power producers, manufacturers of electrical appliances and makers of equipment used in the generation, transmission and distribution of electricity.

Born at Copper Cliff, Ontario, Mr. Hambley joined Ontario Hydro in 1930, shortly after graduating from Queen's University, Kingston. As a member of the engineering staff, he made an important contribution to the development of Hydro services throughout Northern Ontario.

In 1947 Mr. Hambley became Hydro's first director of operations. He was appointed general manager in 1960.

Mr. Hambley is a Fellow of the Institute of Electrical and Electronics Engineers, and a member of the Engineering Institute of Canada.

See You At The Ex



There's beauty in her pencil. Preparation is the secre behind any outstanding presentation and this include the time spent training the young ladies who will staf the Ontario Hydro display at the Canadian Nationa Exhibition. The big show will run from August 21 to September 7 this year.

Eleanor Fulcher of the Eleanor Fulcher Self Improve ment and Modelling School is shown demonstrating the art of good grooming to, from left to right: Leslie Roscoe, Carole Hunt, Heather Vaughan and Iren Truchen. They are among the 18 secondary school students who will help tell the story of Hydro at the Commission's display in the Better Living Centre.

Making its debut at this year's CNE, "The Story Behind the Switch" is sure to prove a major attraction. It is an animated account of the three different source used for the generation of electricity and of the method employed in its transmission and distribution. Last year over 250,000 people visited the Hydro centre which included the "Story of Light and Heat" through the ages. This presentation and the highly successful rain cycle display will again be featured.

It all adds up to another first-class Hydro show and a must on the agenda of every CNE visitor. Persona invitations will be issued to the commissioners and managers of all 356 municipal Hydro utilities acros

the province.

Energy Production in May

Primary energy provided by Ontario Hydro in May totalled 3.24 billion kilowatt-hours, an increase of 5.9 per cent over the same month a year ago.

For the first five months of 1964, the total is 17.07 billion kilowatt-hours, up 8.0 per cent over the same period last year.

Adjusted for seasonal influences, primary energy demand in May was 3.28 billion kilowatthours, 4.6 per cent less than the previous month.

The seasonally adjusted total for May represents 39.33 billion kilowatt-hours at annual rates. This is 282.7 per cent of the energy demand in 1949.

OFF THE WIRES



The latest possibility on the load-building front comes to us in the form of a Reuter's despatch datelined Istanbul, Turkey. At 72, watchmaker Ali Yucel is worried by the thought that he might someday be interred while the spark of life continues to glow. So he is taking precautions lest he should awake in the cold clammy gloom of the grave.

He intends to install a pushbutton electric alarm bell inside the casket. Should the disquieting predicament he envisions come to pass, he has only to press the button to alert the cemetery guard room. In addition, an electric light will stay on inside his grave for one week after the funeral.

Load characteristics would have to be worked out, of course, but the Canadian market for this sort of thing should be limited only by the number of people with a morbid fear of being buried alive.

- "Smell the Grass, Not the Gas" is the appropriate slogan being used by Canadian General Electric in conjunction with the introduction of its electric lawn mower being produced at Barrie, Ontario. The company estimates that 100,000 Canadians will swing over to the electric lawn mower by 1968.
- Almost every day something happens to convince us that electricity is indeed the most versatile form of energy known to man. The latest evidence comes from Japan. Medical World News draws attention to a new Japanese invention designed to whisk fretful infants into the land of nod by deception. Called "mother heart" it embodies a convex disc of soft plastic shaped to the contour of a breast. An electronic arrangement produces the sound and "feel" of a heart beat 70 times a minute. When baby's hand is placed on the device, he promptly goes to sleep, according to the report.

Funny reaction, perhaps, but then the device was never intended to replace the sleeping pill with the older age groups. And it's all kind of sneaky even if the end does justify the means. Peace at any price?

■ Apropos of nothing in particular except that it's summer is a recent editorial in the highly regarded Manchester Guardian on "waist-high" bathing suits for women. We presume they refer to the scanty topless creations

we have been hearing about and not the John L. Sullivan type of costume which commences from the ground up. At any rate, it is significant that this authoritative British journal takes a lenient stand and refrains from viewing the situation with alarm — except to point out the inherent dangers for future generations.

"The parts of the body that may or may not be shown change from age to age", remarks the Guardian. "The trouble with the waist-high bathing suit is not so much what it reveals as what it leaves for future centuries to uncover."

Rather disturbing to contemplate, at that.

All of which reminds us of the man who was gazing rapturously at "Spring" — a rare oil painting of a shapely young girl dressed in a few leaves. Suddenly his wife's voice snapped: "Well, what are you waiting for — autumn?"

■ Trade Topics tell us that the ancient and historical drinking vessel known as a "Yard of Ale" is now being made available by a British glass manufacturer. Use of the 36-inch-high glass was first recorded in 1605, according to the bulletin, and it was in common use in the 17th and 18th centuries.

We are told that some establishments in the Niagara area are using this kind of vessel, which is placed on the floor beside the user, and provides him with more than the customary exercise associated with this pastime.

It's a cooling thought in this kind of weather and after all — there are only 1760 yards in a mile.

By the yard or by the mile, beerdrinkers and white peppermint candy addicts are less likely to suffer from tooth decay than are lemon-juice and clear mint addicts, according to the startling results of experiments carried out recently at Guy's Hospital in London. Young healthy teeth were immersed in 14 different solutions for six weeks and only those chompers which had been in the suds or in the white peppermint candy solution were unharmed.

We always were suspicious of those lemon juice, popsicle and lollypop addicts who, the experiments indicated, are really living dangerously dentally.

■ On the subject of dentistry, Alan J. Clarke is in line for congratulations. A

professional engineer who left Ontario Hydro to become a dentist, Alan graduated recently from the University of Toronto where he won the orthodontic book award and the Henry Thompson Scholarship.

We have no doubt he will make the transition from dam work to bridgework without undue difficulty.

- It's pretty hard to keep up with electric heating developments in the Town of Burlington these days - they are connecting up new customers faster than we can get into print. In "Municipal Briefs" last month we observed that the town had 43 single dwellings, 58 apartment units, a 32-unit motel and 76 additional electric heating jobs of various kinds under way. Bill Pemberton, the PUC's manager of customer relations, tells us we omitted to mention 95 single metered "town houses". Also, the 76 units mentioned have since been connected with an additional 80 units now under construction. As Bill notes, "Burlington is really going all out for electric heating."
- The use of auto seat belts to safeguard the family egg supply is suggested by the Canadian Highway Safety Council. To avoid worrying about a tall sack of groceries sliding to the floor when the brakes go on suddenly, the council recommends that the seat belt on the passenger side be fastened around the grocery bag.

This seems reasonable enough but it might be unwise to leave the car parked alone under these conditions. It could be embarrassing if a neighbour stopped to chat with the wife and got no reply.

■ The publicity is the thing, we suppose, but column position is sometimes difficult to ignore. Take the case of a recent "where to go" column in the Globe and Mail. "If you want to get away from it all," the writer suggested, "why not take a stroll through some of Toronto's cemeteries?"

"Or," he continued helpfully and without malice, we trust, "why not tour a power station? Ontario Hydro proudly reports that last year 300,000 tourists visited four generating stations and the nearly completed Douglas Point Nuclear Power Station. Why, that's 110,000 more people than watched the baseball Leafs' 1963 home games."



Planning to modernize your kitchen? Your Home Modernization Centre can help a lot.

Before you do anything else, come to your Home Modernization Centre. You'll find a visit well worth-while. You'll be given free information and literature that could make a world of difference to your plans, save you time and money and help you make the kitchen of your dreams come true. The people at your Home Modern-

ization Centre can help you and the informative planning guide they will give you free will open your eyes to just what a wonderful place your kitchen can be.

Free planning guides also available on laundries and added living space.

home modernization centre your hydro

This advertisement is one of a series being made available without charge to municipal electrical utilities participating in the House Modernization Program.

HYDRO NEWS

SEPTEMBER, 1964

Lighting up is good for business...see page 18



This sea of paper is only part of the 40,000 tons produced each year by the KVP Company of Espanola. How this newly "independent" municipality at the gateway to Manitoulin Island became responsible for its own destiny is told on pages 2 to 6.



The old and the new are strongly contrasted in this view of Toronto's controversial University Avenue. Slab-sided, modernistic architecture can be viewed through gates erected to keep out the cows. More details and photos commence on page 7.

SEPTEMBER, 1964

ONTARIO HYDRO NEWS

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- 7 University Avenue
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- 16 Canada's Top Showman
- 18 Lighting Up for Business

THE COVER

Galaxy on this month's cover is actually a close-i of a light standard at Yorkdale shopping centre. North York. These modernistic and functional fixtur may be seen in better perspective in the photogral on page 19. Other interesting commercial applicatio of lighting are described in the article "Lighti-Up For Business."

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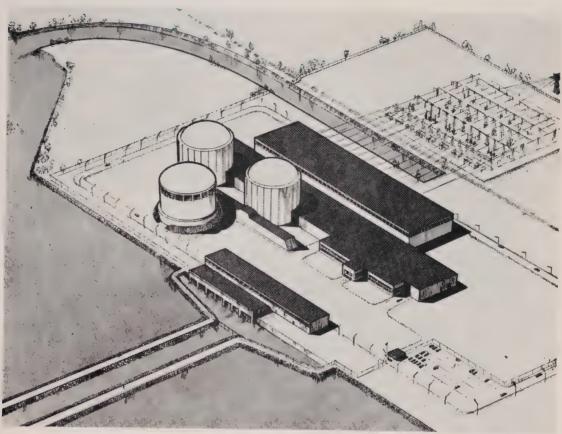
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Photo credits: Harry Wilson — pages 2-6, 7, 14-Bob Armstrong — pages 8-9, 12-13.

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NUCLEAR MILESTONE



In this artist's conception of the new plant, twin reactor buildings are prominent features.

"The advent of nuclear power in Ontario might be compared to a dozen new Niagaras."

Ontario Hydro will build a 1,000,000-kilowatt nuclear power station—the second largest now planned anywhere in the world.

A cost-sharing agreement with the federal government to finance construction of the \$266 million project was announced in mid-August by Ontario Prime Minister John Robarts and Hydro Chairman W. Ross Strike.

Ontario Hydro will provide \$120 million, equivalent to the cost of a coal-burning generating station of similar size. The Ontario government will contribute \$66.5 million, and the federal government \$79.5 million.

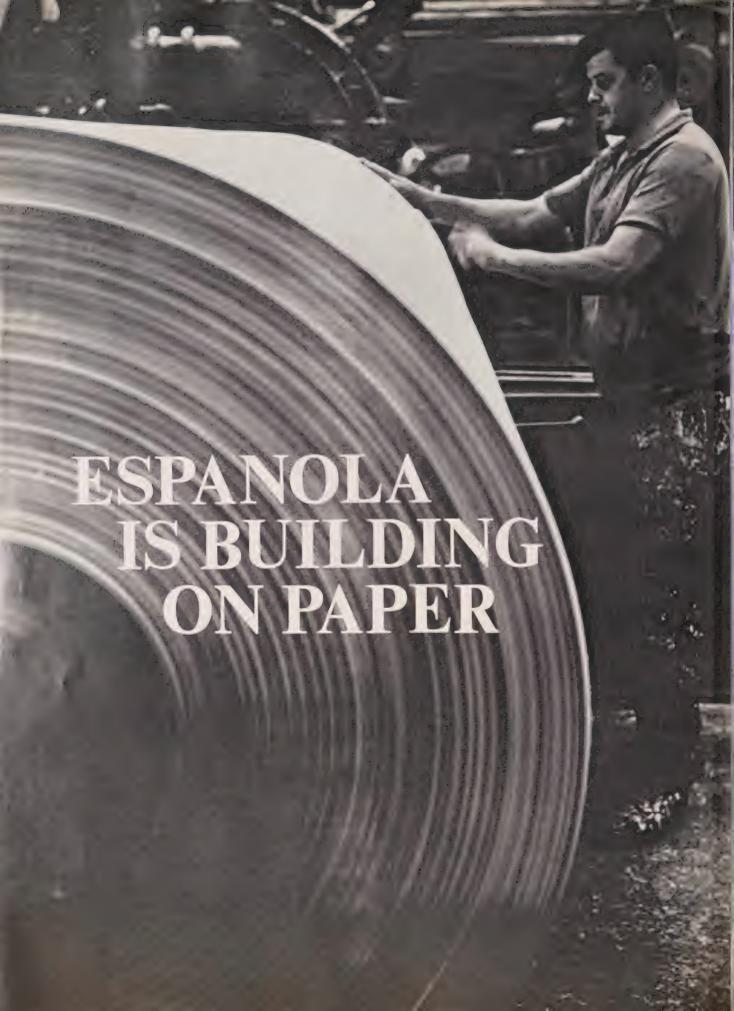
Hydro will build and operate the plant, with Atomic Energy of Canada Limited acting as nuclear consultant. The first of two 500,000kilowatt units is scheduled for operation by 1970. Design of the plant will provide for an extension of two more units, which would raise its total capacity to 2,000,000 kilowatts.

The plant is expected to produce electricity at below four mills a kilowatt-hour. Power from comparable coal-burning stations operated by Hydro is about four mills.

In making his announcement, Mr. Robarts stated that the already vigorous Canadian nuclear industry would be an immediate beneficiary. He said it could now look to future domestic and foreign markets with confidence.

"The advent of nuclear power in Ontario might be compared to a dozen new Niagaras," the premier said.

Mr. Strike said an application would be made to the Atomic Energy Control Board for a reactor construction permit to build the project at a Lake Ontario site in Pickering Township, 20 miles east of Toronto, where Hydro already owns approximately 150 acres of property.



The economic cornerstone of this fledgling municipality is paper,

by JACK BOITSON

There is a good solid sound to the busy footsteps which resound along the main street of Espanola these days - nothing to suggest that some two decades past it was virtually a ghost town.

Neat, modern shops line the wide blacktopped main thoroughfare of this paper mill town 45 miles west of Sudoury. Outside Espanola's limits the street reverts to character as King's Highway 68, the only road link beween the Trans-Canada Highway two niles to the north, and Manitoulin sland, 38 miles south on Lake Huron.

The town justifiably calls itself "The Bateway to Manitoulin Island resort reas" and its parking spaces are filled with recent vintage cars, many bearing cence plates with name tags ranging rom Nevada to Nova Scotia.

More and more tourists are stoping in Espanola itself, taking in the iformative tours through the KVP aper mill and enjoying the beauty of ne Spanish River and surrounding ountryside. Plentiful accommodation, ood golfing, swimming and camping e among the attractions in the imlediate area.

However, the vitality and economic ell-being, so evident in the compact isiness area and the tree-lined resiential streets, still cannot quite heal e scars left on the memories of oldners who recall the depression of the 30s. That's when Espanola almost

came a ghost town. The early years had been good. ith the formation of the Spanish ver Pulp and Paper Company in

99, a newsprint plant was built and these views of the KVP Company suggest, panola's economy is based on paper, but

steers its own course in municipal affairs.







Municipal leadership was there when the need arose. Shown on Espanola's busy main street, left to right are: Mayor F. J. Giroux, first to hold that office; John F. Darby, Hydro chairman; and J. F. Boucher, commissioner. All are members of the original commission.



production commenced in 1905. For nearly 25 years the community prospered. The town grew rapidly and soon its population exceeded 4,000. All the homes, stores and even the townsite were owned by the company which also provided the utilities.

Purchased by the Abitibi Power and Paper Company in 1928, the plant ceased operations two years later when the bottom dropped out of the world economy. The mill was taken over by the government and only a skeleton staff was retained to operate the generating and pumping stations supplying the town with electricity and water.

During those lean and lingering

years, many left forever. Others stayed because they had no place to go.

A retired mill worker who remained recalls those bleak years as a period of hopelessness. "We had nothing and there was nothing to look forward to," he says. "I stayed with the mill to provide essential services to the town. I had a regular pay check, but most were on relief, living in companyowned homes, paying no rent, or light and water bills."

A faint flicker of hope appeared early during World War II when the government converted the mill to a prisoner-of-war camp. Canadian troops were stationed in the town, guarding up to 1,500 prisoners.

But the tiny flame of econom promise burst into real brightness 1943 when the Kalamazoo Vegetab Parchment Company of Michiga bought the mill and property. The Kalamazoo Company (now the official name Canada), specializing in fine bleache kraft paper, had recognized the pote tial of the jackpine stands flourishing in the Espanola area.

New equipment was brought in, the mill re-vamped, and at long last, the welcome words 'men wanted' dreshundreds to the employment offic. One by one the ghosts that prowlethe near-deserted streets and haunte the shuttered houses faded in the hostile atmosphere of prosperity.

Superintendent of fledgling Espanola Hydro system, Gerry Delaney, top left, and his three-man line crew, are aided on the job by modern aerial basket. Highway 68, below, winds down to Espanola on its way to picturesque Manitoulin Island







The KVP Company provides emloyment for 1,000 at the mill and nother 500 in its bush camps in the rea. Annual payroll is about 6,000,000.

Helping to ensure continued good mes is the diversity of paper products ow being turned out by KVP. Through associated company, Appleford aper Products in Hamilton and Iontreal, over a hundred items ranging from food wrappers to building apers are manufactured. KVP produces some 40,000 tons of paper a par.

And with prosperity has come "inependence". The winds of change afting through Espanola brought about its emancipation in 1958 when the townsite joined with other residential areas which had sprung up on adjacent land and incorporated as a town. Long sheltered and shepherded by whoever owned the paper mill, Espanola had discarded the "company town" label it had worn for so long to shoulder full civic responsibilities.

Many problems still face this fledgling municipality. Water and sewer lines require extending, streets remain to be paved and there are schools to build, but these tasks are being tackled with an enthusiasm which bodes well for the future.

A glance at the Espanola Hydro-Electric Commission suggests the competence of the community leaders to administer municipal matters. A neophyte in Hydro circles, where several utilities date back 50 years, the Espanola commission came into existence in 1960 as the result of a vote favoring public ownership of the electrical distribution system.

Due to its tender years, all three original members of the commission are still serving. At the head of the table sits John F. Darby, who was chairman in 1962 and is in the chair again this year. Commissioner J. F. Boucher and Mayor F. J. Giroux, first to hold that office in Espanola, round out the triumvirate directing local Hydro affairs.

Commenting on the early days as a new Hydro municipality, Commissioner Boucher recalls: "At times we didn't know which way to turn. There was so much to learn, so much to do and, let's face it, we knew nothing about running an electric utility."

He adds, "The co-operation and help extended to us by Ontario Hydro and nearby utilities was tremendous. We spent several days at West Ferris and Sudbury to learn about utility operations."

He recalls that many problems arose which had to be solved on the spot. "Particularly customer problems. When you consider that our rates went up by 15 per cent when we first became a utility, you can imagine the reaction among our customers."

With a touch of pride in his voice, Mr. Boucher notes, "Since then our



New schools and churches attest to Espanola's confidence and progress. Since becoming incorporated as a town in 1958 — much has been accomplished — much remains to be done.



HOW KVP GOT ITS NAME

Vegetable parchment was discovered over a century ago by an English chemist who accidentally dropped a sheet of cotton rag paper into sulphuric acid. Pulling it out quickly, and rinsing it in water, he was amazed at the results. The paper now had such interesting properties as wet-strength, grease resistance and translucency.

Later, when produced commercially, the new paper was given the name vegetable parchment to distinguish it from animal skin parchment which was of similar texture and appearance.

Today, wood fibres are the main source of paper, but since wood is part of the vegetable family, the original name remains. Parchment is used extensively as butter, cheese and fresh vegetable wrappers.

Several hundred grades and varieties of vegetable parchment are produced by the KVP Company at Espanola. The parent company in Kalamazoo, Michigan, originally specialized in vegetable parchment and hence the name, Kalamazoo Vegetable Parchment Company.

In Canada, the company name was changed recently to simply the KVP Company.

rates have declined steadily. In four years we've had three rate reductions and introduced an attractive flat rate for hot water heaters."

"Our rates are among the lowest in the North," Chairman John Darby says, "and this is largely due to our high per customer use of electricity." Annual average consumption by the utility's residential customers is around 7,500 kilowatt-hours, which is well above the all-Ontario average of approximately 6,000 kilowatt-hours. Altogether, the utility serves 1,362 customers.

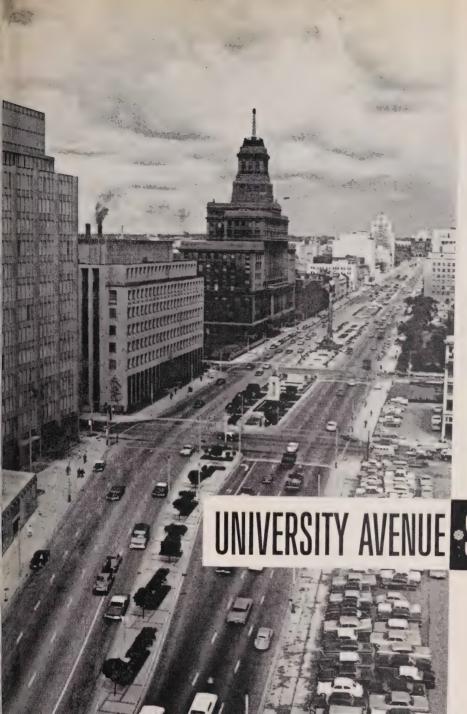
Even more reassuring from the standpoint of Espanola's future as a Hydro municipality is the attitude of the commissioners. Determined to take their place beside the more aggressive utilities, the commission and staff are already taking an active role in the affairs of the Ontario Municipal Electric Association and the Association of Municipal Electrical Utilities.

"Why should we attempt to go it alone," John Darby asks, "when we have all the technical, administrative and policy-making experience of these highly regarded associations at our disposal?" This year John is vice-president of OMEA District 9, which includes all of Northeastern Ontario, and Espanola will be host to the annual district meeting in September.

A crew of three and superintenden Gerry Delaney look after the new utility's maintenance and construction operations. Their work was made easier with the recent purchase of modern line truck equipped with sky-probing aerial basket. Earlier this year, Gerry and his foreman, Don Sunstrom, attended a two-day training course at Ontario Hydro's Conference and Development Centre in Niagar-Falls to learn about the safe and efficient operation of this type of vehicle

"We paid cash for our new truck, John says, "and I understand we ar one of less than 50 municipal utilitie in the province with this type of equip ment. Generally, we're in sound finan cial shape and we aim to keep it that way."

The road from boom-to-bust t quiet growth in Espanola has spanne 65 years. With a population of 5,500 the town looks to tomorrow with con fidence. The people are determined t build on foundations that will weathe any storm and they are not concerne that the supporting pillars ar paper.





UNIVERSITY AVENUE -SHOWCASE OR SHOCKER

"It lacks humanity. It's a concrete canyon that has about as much life after dark as the Gobi Desert."

Thus snorted one of Toronto's daily newspapers not so long ago in continuation of a controversy that was launched in the Thirties, languished periodically during the next 10 years, and broke out with renewed fury in the Fifties over the development and beautification of what surely must be North America's most debated street — Toronto's University Avenue. And the fur continues to fly.

"It's the city's widest, proudest concrete ally," commented an editorial writer, surveying the Avenue from its southern extremities near the Lake to the imposing edifice housing the Ontario Legislature at Queen's Park, on the north.

Toronto's most contentious thoroughfare may have its shortcomings, but

Another critic dismissed the contemporary architecture along the Avenue as a collection of "concrete and glass office boxes."

Less than two miles long, University Avenue is a street of hospitals and office buildings. A wing of the Toronto General Hospital faces the street, as does Mount Sinai Hospital and the internationally-famous Sick Children's Hospital. The list of companies with office structures on the thoroughfare reads like a Who's Who of Canadian business.

Not the least of these is the 18storey Ontario Hydro head office building which, it may be assumed, is not included in the blasts aimed at the shiny, slab-sided contemporary architecture along the Avenue. Built in 1935, it comes between these brash new upstarts and the more venerable Legislature building and Osgoode Hall law school. Gates erected at Osgoode Hall, to prevent cows from invading its august grounds, are still in evidence

Other features lending a Hydro touch to the Avenue's atmosphere are the Sir Adam Beck statue and the Robert H. Saunders Memorial. Sir Adam was recently restored to his old stand near the south end of the boulevard from whence he had been removed to facilitate subway construction. Erected originally by Toronto Hydro and the City, he had previously contemplated Queen's park to the north for almost 30 years.

The Robert H. Saunders memorial at the north end of the street is adjacent to the hallowed halls of the Royal Conservatory of Music. This was the 70-year-old training ground for many of Canada's leading artists until acquired by Ontario Hydro recently. Extensively renovated, its red brick walls now enclose such diverse Hydro functions as Sales, Operations and Advertising.

The progression of University Avenue from a well developed cow path to its present "showcase" status began at the turn of the century. Politicians in office at the time wanted a "grand avenue" as an approach to the Legislative Chamber then under con-



Three Hydro landmarks are visible in this view of the Avenue, looking south. Robert H. Saunders memorial is in foreground, at right is part of recently acquired Royal Conservatory of Music building, and Head Office towers 18 storeys high in background.

About 66 years separate the two photos, left and below, which depict the same section of University Avenue from opposite directions. Queen's Park may be seen in recent photo, left, at northern end of the thoroughfare.

Photo courtesy Toronto Public Library





mpions are as numerous as its critics. They both fight about foliage.



struction. The fact that the ground on which the Chamber stands had formerly been the site of an insane asylum, while not particularly pertinent, has not been overlooked by some of the Avenue's critics.

And the metamorphosis continues. Major building projects now under way along the Avenue include a multinillion dollar complex of government office structures at Queen's Park and a \$16 million Metropolitan Toronto Courthouse on the site of the former armouries building. The razing of this toutly built military monstrosity was n itself the subject of much heated ontroversy. More imposing office buildings are planned for the south nd of the street, including a so-far ypothetical 67-storey structure.

What, if anything, should be done b inject some life into the Avenue fter dark is still being debated. One nember of City Council suggests that ne centre mall might be utilized to hange the street into another Avenue es Champs Elysees, complete with afes, beer gardens and open air theaes. Others in authority imply that ich a move would be carried out nly over their dead bodies.

All such controversies pale into ingnificance, however, beside the great attle of the Trees which erupted in le early 1950s and could break out ith renewed violence at the drop of

The ground for the battle was laid the decision of the City Fathers to nbellish the mall running along the ntre of the avenue with trees. "Bra-', was the unanimous reaction itil the landscape artist entrusted th the project recommended linden. ch was the uproar attending this oposal that it almost drowned out e screams of those demanding good d fashioned Canadian maple — "the mbol of our country."

Charges and counter charges were ng about in City Council. One ember who vowed he would not nd idly by and see the Avenue beme another Unter den Linden was cused of racism.

Victory went to the patriots. Or so



Busy by day, Avenue is virtually deserted by pedestrian traffic after dark. New subway extension runs beneath the pavement.



Central mall consists of 12 islands like these. Floodlit at night, the mall includes fountains, pools, shrubbery and benches.



they thought. As it turned out, the 145 maples which finally appeared on the boulevard in 1951 were a species of Norway maple imported from Holland. Consternation ruled supreme, when two years later, it was discovered that half these European weaklings were dead and others appeared ready to expire.

And so the battle was rejoined both inside and out the council chambers until a day many months later when, as one newspaper reported it, "the politicians staggered out of the smoke and fire to find the boulevard lined with newly-planted flowering crab apple trees."

Uneasy peace reigned for nine long years as the flowering crabs took root and their fragrance did what it could to combat the smell of auto exhaust fumes for a few short days each spring. But the trees were never fated to mature.

Victims of an underground movement, the young crabs were uprooted to permit construction of the subway which now runs a subterranean course along the length of the Avenue. It was only with the recent completion of this section of the rapid transit system that Metro officials could get back to really serious matters — namely the mall and its beautification.

Virtually complete, the project is by far the most imaginative yet devised. It involves a 12-island illuminated mall from Richmond Street to Queen's Park, with centre panels of grass, multi-colored paved areas, fountains, pools, benches for the weary, flowers and — of course — trees.

Discreet inquiries of the firm charged with the present face-lifting reveal that the trees now adorning the mall are "mop head" or "globe" elms.

Sounds innocent enough on the surface, perhaps, but a quick check of the Standard Cyclopedia of Horticulture raises some disturbing prospects. As near as we can determine, the little mop heads are actually Ulmus carpinifolia umbraculifera - and if that isn't enough to raise a bit of steam in the council chambers then the old town just isn't what it used to be.

WHEN IS A SUBSTATION NOT ONLY A SUBSTATION?



Hamilton Hydro is proud of the way its substations blend with their surroundings. Bungalow type, above, is located in southeastern suburbs. Metalclad switching equipment is contained inside while the transformers are mounted in the back yard.



Substation disguises are by no means confined to bungalows as this handsome structure suggests. It belongs to the Village of Forest Hill Hydro System and fits in very nicely with its upper class neighborhood.



Thousands pass this building each day without being aware of its identity. Often mistaken for a library, it is actually Toronto Hydro's 80,000 kva Glengrove substation located on busy, commercial Yonge Street.

by PAUL CHISHOLM

Take another look at that quiet house across the street. With its trim lawns, manicured shrubbery and neatly curtained windows it could belong to the Jones family and everybody knows how difficult they are to keep up with.

A house though, is not necessarily a home. It might even be a substation.

Such "houses" for transformer and switching equipment are part of a continuing program by many municipal utilities in Ontario to spare residential neighbourhoods the old-style box-type substations which tended to stick out from their surroundings in a manner ill calculated to win friends and influence neighbors.

With urban load becoming increasingly dense, the house approach makes it possible to build new stations in residential zones. In all cases the utilities must abide by the building regulations of the municipality concerned. While the camouflage structures are essential from the aesthetic standpoint,

they also help considerably in reducing noise level as an enclosure is the most effective silencer.

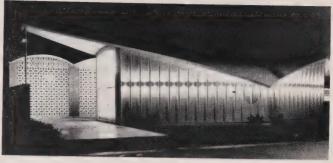
In some cases the houses are specially constructed, in others existing homes are taken over. Completing the illusion, incoming transmission lines and outgoing distribution lines are placed underground in the vicinity of the station.

Because of the ventilation problem, transformers or their coolers are usually located outside and may be partially roofed. When installed in the "backyard" of the station, a suitable

Vhen it's a library - a bungalow - or a park building



Another example of the pains taken by Toronto Hydro to fit in its substations with the type of buildings predominating in the area, this one has the appearance of a multiple-unit dwelling,



Located in a downtown redevelopment area near city hall, this Windsor substation not only suits its surroundings but is of interest by itself for its design. Low voltage switching equipment is up front while the transformers sit behind a wing wall in the rear. Heavy switchgear stands behind the pierced block wall.



Vell manicured lawns, carefully tended shrubs and a two-car garage are among the attractive features of this uburban bungalow. Etobicoke Hydro is the landlord and the enants are well behaved substation equipment.



This building doesn't look a bit out of place in Cedarvale Park, but instead of garden equipment it contains transformers and switchgear. Substation belongs to York Township Hydro.

vall which appears to be part of the tructure screens them from view. only an airplane pilot knows for sure! Indicative of the pains taken to ssure conformity with neighboring rchitecture is the mail problem. Utily personnel are often required to relove circulars and other commercial fail left on the door steps or letter oxes of these bungalow-type substaons by distributors fooled by appearnces. A week's free subscription to ne local newspaper is not uncommon

But to Hamilton Hydro, perhaps,

goes the ultimate in compliments for successful camouflage. J. W. Hammond, general manager, recounts the story of an American visitor who passed by Kenilworth substation and was so taken with the design of the house she wanted one just like it.

A neighbor seeing the woman knocking on the door directed her to the utility, which put her in touch with the architect. Another bungalow-type substation in the city won an award from a society promoting good landscaping.

The house guise is by far the most

common for substations. However, the objective is to keep these installations in harmony with the surroundings whatever they may be.

For instance, York Township Hydro recently completed a flat-roofed brick and stone structure which resembles a modern park building and is entirely in keeping with its environment. Other guises used by utilities at various locations in the province include a court-house like structure, what might be termed the new trend in art galleries, a library and an apartment building.

by NORMAN PANZICA

In the attic of a 70-year-old home, a decades-old toaster, forgotten by its elderly owners, lies gathering dust . . .

In an unknown factory yard, an old motor blisters and flakes into a mass of rust....

These instances typify two opposite situations which influenced Ontario Hydro's decision last year to collect, refurbish and store items likely to be useful in reconstructing the history of electrical progress in the province.

Factories, utilities, individuals and universities have long stored old electrical equipment and appliances simply because it seemed a shame not to. But others have thrown much of Ontario's electrical heritage on to the junk-heap.

Hydro shared a widespread feeling within the industry that important items of electrical history ought to be kept and when the decision to collect such material was announced, the response was immediate and gratify-

Now, with thousands of items gathered at the A. W. Manby Service Centre in Toronto, the massive job of cataloging, verifying and refurbishing has begun. Items regarded as the more important or more interesting will be placed in operating condition.

Some refurbishing is being done voluntarily by a few Hydro pensioners; some is being contracted out. Committees composed of specialists in such fields as lighting, metering, appliances and generation provide technical advice.

The usefulness and importance of such a collection is already being reflected in the requests for displays by utilities, and by the interest of school teachers who have visited the Manby Service Centre to see the collection.

Portable display panels have been loaned to utilities in Milton, Niagara Falls and Toronto. Requests have also been filled for Windsor's 50th anniversary in September and the AMEU Meterman's Workshop in November. The provision of such mobile displays for historical observances by Hydro utilities, civic groups, service clubs and other organizations throughout Ontario will be a primary function of the collection.

The following items suggest the kind of material being preserved.



This table-top motor was bitterly denounced in Toronto back in 1883. The guileless quarter-horsepower motor was installed in a cafe as a showpiece, with the added inoffensive purpose of grinding coffee, by electrical pioneer J. J. Wright, first president of the Canadian Electrical Association. The diatribe thundered from the august lips of a minister, gravely concerned that the "instrument of evil" shown here would release young girls from honest toil and they would thus "wander about the street and fall prey to the wiles of Satan." Toronto Hydro-Electric System gave this, probably Canada's first commercial electric motor, to the collection.

SALVAGING TH

Ina

are pitching in to help H

piece toget.

INSTALLE



BIG BULBS & SMALL



Light, over the years, has come from bulbs of an almost limitless variety of sizes, shapes, colors and wattages. Looking over proof of this in the Hydro collection are, from left, Ontario Hydro First Vice-Chairman G. E. Gathercole, Chairman W. Ross Strike and General Manager J. M. Hambley. The collection of more than a thousand bulbs includes nearly 350 different types of incandescent, fluorescent, mercury, neon and arc lamps. They range from a minuscule onesixty-fourth of an inch in diameter (one-fiftieth of a watt, used in medicine) to a 5,000-watt giant about 12 inches in diameter. Remarkably, at least half the bulbs are in working condition.

LANDMARK OF PROGRESS

id industry

trical past

A chance remark by an official of the Niagara Mohawk Power Corporation of Niagara Falls, N.Y. to an Ontario Hydro public relations officer led eventually to the acquisition of this 75-ton generator as a gift from NMP. Largest single item in the Hydro collection, the 3,750 horsepower unit represents one of the most important developments in the electrical field. It went into service in 1899 at the Edward Dean Adams plant in Niagara Falls, N.Y., recently demolished. The big unit and its twin (the latter is at the Smithsonian Institute, Washington) used Tesla's polyphase concept, enabling the plant to send power all the way to Buffalo, N.Y.



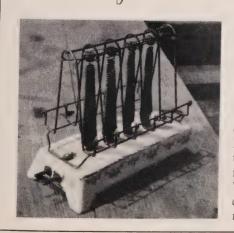
MAS EDISON

urge to keep alive Canada's al heritage by preserving old ent is itself far from new. As 1930, Dr. W. P. Dobson, then Hydro's director of research, d for Hydro to acquire this 16 wer DC generator from Canottons Limited at Cornwall. Edison himself is said to have sed installation of the bi-polar the plant in February, 1883, a weave shop. It was in service lears, helping to debunk editorment of 1883 that electric had "had its day" and "is not l as a formidable rival" for

WOOD AND ELECTRICITY



Housewives of just over four decades ago couldn't quite accept a kitchen stove unless it helped heat the kitchen, so manufacturers wisely turned out "combinations" like this one. There were electric elements in the 1920-1927 period, but the ranges retained fireboxes for wood and coal. Some families used the firebox in winter and electric elements in summer. The 1922 model shown here, one of four donated by Moffat's Limited of Weston, also proves that eye-level ovens aren't exactly a revolutionary idea. The same firm also donated a glass case with samples of surface elements from various stages in the development of electric cooking.



M'Lady's Toast In the days before our national love of chrome, nickle-plating and the like, this diminutive open-element toaster graced Ontario's kitchen tables. Weighing barely 16 ounces, its size was as well-suited to the gentler sex of the day as were the pink flowers adorning its white porcelain base. This "topless" model, patented in 1909, was made in 1912 and is in operating condition. Given to the historical collection by the Canadian General Electric Company, it is one of more than two dozen toasters and irons donated by that company. Canadian Westinghouse Company and other electrical manufacturers have also made valuable contributions.



by PAUL CHISHOLM

The name "Anechoic Room" may suggest a new night spot in town, and with a touch of soft lighting here and there the illusion of a cocktail bar would be almost complete. The quietness is overwhelming . . . there is an overall atmosphere of intimacy . . . and the pattern of fibreglass wedges protruding from the walls looks strictly avante garde.

But instead of waiters in trim jackets, the staff working in this newest facility at Hydro's W. P. Dobson Research Laboratory are dressed in conventional dust coats or cover-alls. Their role is to further the continuing battle against excessive noise levels, and the anechoic room is a major new weapon at their disposal.

Anechoic is not the sort of word that trips lightly off the tongue and it may be foreign to some vocabularies. As defined in Webster's Dictionary it means "free from echoes and reverberation". Hydro researchers go along with this description.

Noise level studies and corrections

for a wide range of electrical, construction and office equipment will be made both easier and more accurate with the aid of the new facility — one of three in the province. Built at a cost of approximately \$20,000, its soundabsorbent walls are made up of 2,500 inward-pointing fibreglass wedges, each 30 inches long.

The entire room, which has a free area 12 x 12 x 9 feet, floats on rubber and steel springs to prevent the intrusion of structurally-borne noise.

"Up until now we have had to allow for room effect or echo in noise testing and measurement," explains Aubrey T. Edwards, of Hydro's Structural Research Department. "The anechoic room permits complete isolation of the noise source from the room effect."

One important use for the anechoic room will be the calibration of the sensitive instruments used by Hydro for tracing and measuring noise sources from electrical equipment in urban areas and in buildings. Some of this work is done on behalf of municipal utilities. Noise levels in construction, which have an important bearing on safety as well as public relations, are

also under constant surveillance.

The nearest to "dead silent" area used previously for calibration was i the basement of employees' suburba homes during the early hours of th morning, or at locations in rural areas. But because of the extreme sensitivit of the measuring instruments, thes locations were never completely satisfactory as they were never entirel noise free.

Studies by the Commission's struc tural research group have resulted i a number of ways to keep noise a acceptable levels. Examples range from the development of a muffler for pnet matic drills, to a system of absorbir noise which originates from some type of air conditioners, and an inexpensiv method of reducing hum from tran former stations has since been applie to a number of Ontario Hydro an municipal stations. The simple techn que involves drilling a hole of a pri determined size in each cell of th structural blocks forming the tran former enclosure to achieve maximu sound absorption.

Municipalities occasionally call (structural research to help solve loc

Anechoic is the word for this mysterious chamber.



Hydro's anechoic room is latest scientific facility being used in fight against noise. Aubrev Edwards of the Structural Research Department, is shown, opposite page, inspecting placement of noiseabsorbent fibreglass wedges which make up the walls. With Jack Thompson, below, he demonstrates size of the wedges, 2.500 of which are contained in the walls. Calibration of sensitive instruments, such as sound level meter being used, left, by technician George Bradrick to gauge transformer noise, is important use of room.



ise problems. Typical are recent dies and recommendations to reduce ise from transformer stations at terborough and in East and North ork townships.

The frequency of noise levels which is be investigated in the anechoic om range from approximately 100 les per second (which is about one ave below Middle C) upwards and rond the high pitch of jet engines. Grill platform floor in the room will tain objects weighing up to 5,000 inds. Rails leading onto the floor bugh a heavy, double-seal acoustic ir, facilitate movement of equiptit.

Adequate noise control is an imtant and costly factor in the design he Commission's stations," said Mr.

Edwards. "The anechoic room is expected to provide us with greater basic knowledge for application in this area. It is also important that noise from transformer stations and blast circuit breakers in urban areas be at tolerable levels, for although unnoticed during the day, it can sometimes be annoying at nights. Transformers in buildings can be disturbing too.

"Apart from the public relations aspects, it is generally acknowledged that excessive noise levels on the job can result in fatigue, irritability and generally lowered morale. This applies to the office as well as the plant.

"Machinery is being used increasingly in the office, frequently to the accompaniment of clattering typewriters, which can raise overall noise to objectionably high levels. This is one area we will be investigating further in the anechoic room so that corrective measures can be introduced should they appear desirable. Noise from heat pumps will also receive attention."

Excessive periods alone in an anechoic room can cause eerie sensations. Some people hear their hearts beating, and a feeling of nausea can develop. This points to the delicate balance in the human "mechanism", and emphasizes the degree to which hearing is relied upon.

Studies at one American university indicate that the higher the IQ of an individual, the more likely he is to be nauseated by the complete absence of sound.

CANADA'S TOP SHOWMAN



Patty Conklin climbed all the way from peanut vendor to Midway King.

Forty-three years ago a brash young Irish American crashed the fair circuits of Western Canada with a couple of carloads of outdoor show equipment and plenty of confidence. Even this was a big step up for a boy who first tasted carnival life at the age of 14 by selling peanuts at New York's old Madison Square Garden.

Today, Patty Conklin, the Midway King, now a Canadian and the most highly respected impressario in outdoor show business, is at the top of the heap. And it has been a long climb from the time he ran a kewpie doll concession in St. Boniface, Manitoba, or the day, in 1924, when he joined forces with Speed Garret in Kelowna, British Columbia, to organize the Conklin and Garrett Shows.

In 1929 the business became a family affair when Patty's late brother Frank bought out Garrett.

Working their way up through Class C to B to A fairs and finally the

Canadian National Exhibition, the Conklin shows have played most of the minor fairs and every major show in the country except Ottawa, which conflicts with the CNE dates.

The Conklin concessions are now as much a part of the CNE as candy floss and popcorn. And the Conklin family has been the mastermind behind the operation of the amusement section since 1937 when they started with 22 sideshows and 16 rides.

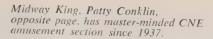
Since 1929, when they turned their backs on separate power units, usually diesel or gasoline generators, they have claimed to be the only completely electrified outdoor show in Canada or the United States.

And if you're young enough to enjoy having your bones jostled about in the latest and most effective fashion, Patty Conklin is your man. Each year he travels thousands of miles investigating what's new and different and he has scored an impressive number of North American "firsts" for the CNE. Five major rides were added to the midway this year.

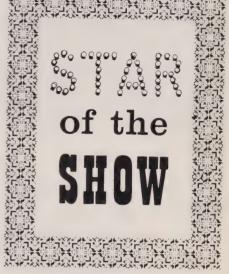
"The majority of rides are manu factured in Europe", he says, "pre dominantly in Germany and Italy There are a few made in the United States, but, mind you, it's a might limited market."

Not the largest outdoor show o earth — that distinction is usually accorded the Royal American Shows of the U.S. Mid-West — the Conkli Shows, with 59 rides and attraction at the CNE, represent the largest un playing in one place. Some 700 peoplare employed part or full time wit the Conklin organization.

What happens to the Conklin show in the winter? Canada's Sarasota: Brantford where, in huge maintenanc shops, the rides and other attractior are whipped into first class mechanic; and electrical shape for the seaso ahead.







Brightest by far of all the stars at the Canadian National Exhibition is electricity. Powering rides and illuminating the midway are just part of the electrical performance. Now nearly every major attraction utilizes electrical energy in some form. Last year the giant fair used almost 2,800,000 kilowatthours, as compared to 880,000 kilowatt-hours consumed in 1931. Peak demand in 1963 was 9,888 kilowatts or as much as the requirements of the town of Mimico at peak periods.

To help cope with the ever-increasing use of electricity at the CNE, an extensive modernization program has been drawn up to increase system capacity. To cover a 10 year period, it includes extensive improvements to the primary and secondary circuits and the upgrading of lighting levels in the various buildings.



Hundreds of thousands passed this impressive facade again this year to view the Hydro exhibits - judged "best in show" by many.



t ver-changing electric signs like the one above v sh their messages throughout the night along ours urban traffic arteries.

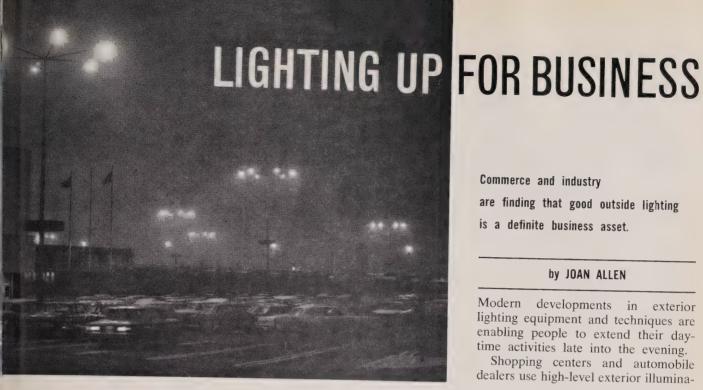




Metro golfers enjoy practising under the lights at Pleasure Park Golf Centre just north of Toronto.

Fluorescent floodlights draw evening shoppers' attention to Elliot Motors used car lot near Belleville.





Commerce and industry are finding that good outside lighting is a definite business asset.

by JOAN ALLEN

Modern developments in exterior lighting equipment and techniques are enabling people to extend their daytime activities late into the evening.

Shopping centers and automobile dealers use high-level exterior illumina-

or floodlighting at 1 the Park, York, makes motor stand out after dark.





Argos can't blame fumbles on the lighting at their home stadium, Field illumination totals some 673 kilowatts.

Modernistic lighting fixtures give attractive, functional illumination at 24-hour service station.



Photo courtesy Sylvania Lighting Products

BEACON IN THE SKY. A brilliant beacon has been added to the New York skyline with the recent illumination of the top 30 storeys of the Empire State Building in 5,000,000 lumens of light.

Installed to coincide with the opening of the World's Fair, the lighting project has turned the top of the world's tallest building into a solid block of light which, when enough of the lower office lights are turned off, has the effect of floating in air.

The installation consists of iodine-quartz floodlamps mounted on setbacks in the 102-storey building at the 72nd, 81st and 90th floors. In addition, several hundred fluorescent lamps are used to illuminate the 222-foot tower of the structure from the inside. The system uses a total of 300,000 watts. Cost of the system was about \$250,000 and it has been estimated that the energy consumed will cost only \$25 a night.

tion to attract after-dinner customer Sporting events such as football, base ball and harness racing are often hel "under the lights." Nighttime game or practice sessions on the drivir range are becoming a boon to bus golf buffs. And well lighted parkir lots for these activities actively discourage vandalism.

Businessmen are also finding the exterior lighting is effective on-the spot advertising.

With exterior floodlighting enhancing the architectural design, an officiouilding, for example, will sell the company's name to passers-by lor after the staff has called it a day. An outdoor lighting also discourage prowlers from making after-hour cal to the premises.

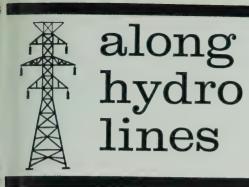
The effect of natural daylight of building design has been studied an utilized by architects for a number of years. But unless exterior artificial illumination is also taken into consideration, the building's identity diappears with the setting sun, or becomes a hodge-podge of lighted windows.

With modern floodlighting, a building's daytime appearance can be retained after dark. Or it can be subtranged to create an entirely different effect.

The exterior surfaces of many ne buildings, with glass curtain walls of windows and dark spandrels, are virtually impossible to floodlight. For the structures, conventional exterior floodlighting can be replaced by "interior floodlighting". Properly used, interior floodlight causes the whole building to glow from within, emphasizing the lightness and openness of the archite tural design. The simplest internollighting system is achieved believing lighted all or part of the normal lighting system.

A number of businessmen, as we as homeowners and farmers, a making use of the "dusk-to-dawlighting plan which Ontario Hydro offering to its rural and local syste customers. They rent 175-watt me cury-vapour lighting units with pho electric controls, for use on any priva property. Dozens of units have a ready been installed in front of roa side restaurants, small service station and used-car lots.

A subtle yet highly effective mea of advertising for the businessma good exterior lighting is definitely bei reflected at the cash register.



Metermen's Workshop

The fruitful "buzz sessions" of the 1962 and 1963 Metermen's Workshops conducted by the AMEU were so successful that the third, set for November 19 and 20 this year, is almost guaranteed a good turnout.

Representatives from 77 utilities attended last year's Workshop, compared with 67 in 1962.

Now definitely an annual event, the Workshop is to be held this year in Toronto's Skyline Hotel. "Emphasis this year will be on service entrance equipment as well as metering equipment," says Don Smith of Kingston, chairman of the AMEU Metering and Service Entrance Equipment Committee. "We are arranging the sessions to give the greatest opportunity for individual participation. We feel talks and displays will be of practical interest to all metermen".

Ice Boom Developments

Ontario Hydro has awarded a contract for the supply and installation of 14 anchors for a Lake Erie ice boom to McNamara Marine Limited, Toronto.

The ice boom, recently approved on a trial basis by the International Joint Commission, will be installed at the entrance to the Niagara River by freeze-up. It is designed to assist in formation of a stable ice sheet on Lake Erie to prevent massive discharges of ice into the river which sharply curtail power production and often cause damage to river installations.

The boom, which will be a two-mile chain of floating timbers anchored by a heavy cable to the lake bed, is a joint project of Ontario Hydro and the Power Authority of the State of New York. PASNY has awarded a contract for an additional 14 anchors and installation of the boom.

The two power entities will share costs, estimated at more than \$600,000, on a 50-50 basis. Installation and removal of the boom will be in accordance with IJC orders.

i20 Million Contract

A second major equipment contract has been announced by Ontario Hydro for its Lambton Generating Station in Moore Township near Courtright, 14 miles south of Sarnia.

Combustion Engineering-Superheater Limited, Montreal, received the order for two boilers and auxiliary equipment valued at approximately \$20 million. The boilers will be capable of producing a

maximum of 3.6 million pounds of steam an hour at 1,000° Fahrenheit for the station's two 500,000-kilowatt generating units.

An \$18 million order has already been placed with Canadian General Electric Company Limited for the two 500,000 kilowatt turbo-generators which will be the largest built and installed in Canada. At present the biggest Canadian units in operation are the 300,000-kilowatt generators at Hydro's Lakeview Generating Station near Toronto. The larger Lambton units will give greater economy of operation.

Initially the \$110 million thermal-electric plant will be a two-unit installation with a total capacity of 1,000,000 kilowatts, equivalent to the peak power demands of Toronto, London and Sarnia. However, the 450-acre site fronting on the St. Clair River will allow for future extensions as required. Construction of this new coal-fired station, scheduled for commissioning in 1969, will begin late this year or early in 1965.

Service For Summer Cottages



Using equipment similar to that being employed by Ontario Hydro to lay and bury cable in the ground, the Bell Telephone Company went one further, above, and took the plough right into the water. About a half mile of telephone cable was buried in a shallow section of Lake Nipissing in this manner to avoid use of expensive armour cable. Also, buried cable is less likely to be damaged by boats, ice and other shallow water hazards.

No plough would navigate in the waters, below. Photo shows Ontario Hydro crew laying submarine cable from a barge in Lake Timagami. Nearly 14 miles of the cable laid on the lake bottom will supply electric power to about 70 homes, summer resorts and cottages in the area. A power line supplying the Timagami Copper mine serves this resort area.



357th Hydro Municipality



A cheque for \$2,423,895, representing payment for Ontario Hydro's distribution system in Nepean Township, is being exchanged by some of the principals involved in creating the 357th Hydro municipality.

The cheque is being tendered on behalf of Nepean Township by Reeve Aubrey Moodie, left, to Harry Hargreaves, interim chairman of Nepean Township Hydro, second to left, for presentation to Hydro's A. M. Pedersen, Eastern Region manager. Erskine Johnston, MPP, is at the right.

In turning over the cheque to Hydro, Reeve Moodie said his township council had supported the purchase to a man. "Many people," he said, "put their efforts behind it. Hydro did not hang a 'for sale' sign out but they gave us every co-operation - they did not throw any obstacles in our way. We still depend on that co-

The voters of Nepean Township, just outside Ottawa, approved the purchase by a 95 per cent vote in favor of establishing a local Hydro system.

Hydro's A. M. Pedersen reminded the group that the system now serving Nepean's 10,000 customers was built over many years and had grown from a sparsely settled rural area to a busy, densely populated community.

MUNICIPAL BRIEFS

Newly-appointed Toronto Township Hydro chief engineer Ross Lamb recently presented plans covering a 25-year period for the development of the electrical system in this fast-growing municipality. These included the proposed conversion of parts of the municipal distribution system from 4,160 volts to 13,800. At a joint meeting with Port Credit and Streetsville Hydro, Mr. Lamb predicted that the Toronto Township load of 90,000 kilowatts would increase sixfold over the next quarter century. He said that this growth could be handled at 13,800 volts by 14 substations as compared with 45 substations with a 4,160-volt system.

A strike by the employees of the Perth PUC was a month old and still unsettled at the time of writing. The employees were seeking union recognition which is denied them under a by-law removing civic employees from the jurisdiction of the Ontario Labor

Relations Act. The strikers were suspended and the commission launched a hiring campaign to fill the vacant positions.

C. G. Johnston, chairman, and a member of the Esser PUC for over 25 years, died recently. He had beer presented with the long service certificate by the OMEA for his contribution to the progress of Hydro ir the province.

Orillia Water, Light and Power Commission will proceed with a \$713,708 redevelopment of the Swif generating plant, which will add an additional 4,000 horsepower to the utility's peak capacity.

Sudbury Hydro salesmen will receive a commission in addition to their salaries for a trial period of six months Based on a suggestion from Wes Edwards, vice-chair man, the men will receive commissions on the sale o all-electric service to homes and the installation o water heaters.

Dr. C. I. Bacon was elected president of the Electrica Utilities Safety Association at its 49th annual meeting held at Bigwin Inn recently. Dr. Bacon is the vice president and general manager of the Cornwall Stree Railway Light and Power Company.

The demerit system not only penalizes faulty driver in Peterborough, but it will be applied to homeowner who fail to pay their Hydro bills. Peterborough Utilitie Commission has decided to charge first offenders \$: to have the electrical service reconnected if it has been cut off for failure to pay the bill. A second offence wil cost \$3 and a third \$5. Demerits will be written of if there are no offences after two years.

Waterloo PUC is going to blazers according to the Kitchener Waterloo Record, which reports that on the suggestion of its sales supervisor the commission agreed to pay half the cost of blue blazers for its 51 employee: and five commissioners. PUC crests advertising electric living will be supplied free to those who buy the blazers.

Donald Hines, former manager of Harrow Hydro, ha been appointed manager of the Dresden Utilities Com mission. Mr. Hines replaces C. W. King, now manage of Ridgetown PUC. With the Essex PUC from 1941 to 1954, Mr. Hines was then named manager of the Til bury PUC, a position he held until his Harrow appoint ment in 1960.

John T. Barnes has been named chairman of Sarniz Hydro to fill the post left vacant by the death of E. W (Curley) Allen. Commissioner Jack Church was elected vice-chairman, replacing Mr. Barnes, while G. C Norsworthy has been appointed to the commission by city council to complete the term of the late Mr. Allen

In a report to the Hydro commission, Chairman Barnes said that the current and planned expansion o local industries was bringing an increasing demand fo power. "If this demand continues at the present rate Sarnia Hydro will soon rank as the third largest utility in Ontario in the field of power consumption," Mr Barnes said. Presently Sarnia is the fifth largest utility in the province from the point of view of consumption

Returning to his home town after an absence of 24 years, C. W. "Curly" King has taken over as manager of the Ridgetown PUC. Beginning his electrical association with Ontario Hydro almost 30 years ago, Mr. King was with the Glencoe PUC for four years and the Dresden Utilities Commission for 20 years. Ridgetown PUC is taking over the operation of the system from Ontario Hydro.

- J. Gordon Archibald, manager of the Woodstock PUC for 40 years until his retirement in 1941, died recently at the age of 94. President of the AMEU in 1928, Mr. Archibald was a life member of that organization.
- J. C. Montgomery, manager and secretary-treasurer of Cottam Hydro System, has retired after 21 years of service. At a dinner held recently in his honor, Mr. Montgomery was presented with a travelling case. He will be succeeded by W. Stockwell.

Petrolia's first subdivision will be a Gold Medallion development with all-electric homes and underground wiring. Dr. W. T. Shaw, president of the Petrolia Investment Company, says the homes will feature the latest electrical advances. "Electrical heating has developed to the stage where it has become the superior method of heating and we think we will have advanced homes at a reasonable cost under the Gold Medallion system," he said in an interview with the Windsor Star.

Life is being made easier for metermen in Belleville. As of August 1, all new electric meter installations for single family dwellings in the city will be placed out of doors, eliminating call backs for the meter man when the owner is away. The regulation will also apply if there are major changes in electrical services for existing homes.

Owen Sound PUC, one of the originators of appliance and wiring financing through utility accounts, will continue its program for another year. Of 245 loans for appliances and 75 for wiring only one has given any cause for concern.

Ornamental lawn or "silhouette" lighting may replace conventional street lights in Waterloo's future subdivisions. Ivan Bradley, manager of the Waterloo PUC, is experimenting with lawn lighting in one of the city's new building areas. If results are favorable, the commission will consider the new type of street illumination for all new residential areas.

One of the most attractive apartment buildings in Etobicoke Township, the fifteen story El Rico, now nearly completed, is all-electric. The installed capacity of its heating system is 465 kilowatts. One meter serves the whole building and the monthly rent includes the electric energy used for heating, cooking, lighting and air conditioning. Even the swimming pool is electrically heated.

Another all-electric subdivision, this one in Stratford, is setting new records for fast home sales. The principals of the development said they would be content if as many as four homes were sold each month. In the first week, eight sales were completed.

Late Manager Honored



A presentation of a memorial photo, plaque and a \$3,000 cheque in honor of the late Robert Butter, former secretary-manager of the Owen Sound Public Utilities Commission, was made to the Owen Sound YMCA recently by the PUC. Mr. Butter was a former president of the "Y" board. Above, from left to right, Norman Robertson, PUC chairman, presents the picture of Mr. Butter to Art Starr, YMCA board president, while John Gurnham, PUC secretary-manager and Fred Gamble, YMCA general secretary look on.

Woodstock Manager Dies

A promising municipal Hydro career was cut short with the untimely death recently of P.G. (Glen) Sanderson, manager of the Woodstock Public Utilities Commission. He was 40 years old.

Mr. Sanderson joined the Woodstock utility in 1950 after graduating in electrical engineering at the University of Toronto. He was named assistant manager in March, 1951, and became manager in mid-1962 with the retirement of Cecil E. Kirkby.

Active in the affairs of the Association of Municipal Electrical Utilities, Mr. Sanderson had been a director of District 7.

Among the survivors are his wife, Nora, and four children.

BACK CURRENTS

The Bulletin, forerunner of Hydro News, was first published in 1914 to inform the municipalities of Commission activities and to provide an outlet for developments at the local utility level. Gleanings from its early pages often emphasize the changing scene or suggest that there is nothing new under the sun.

The following item, from the September edition, 1915, takes us back to the time when many houses in urban areas were still without electric service:

"To have a customer express an enthusiastic belief in the economy and long life of Hydro Quality lamps is by no means a new experience, but for genuine rockbottom faith in lamp economy, the experience of Berlin (Kitchener) with a lady customer is the best yet.

"The story as told by Mr. V. S. McIntyre (manager) is as follows: 'A short time ago we had the Mystery Window fitted up in our office. We spent some time in fitting this up, with the result that the lamps were burning without sockets or visible wires of any kind. A lady customer came in and purchased a half dozen 40 watt lamps - specifying them to be the same as shown in the window. A few days later, the customer returned the lamps and complained that they would not burn in her home. I tested the lamps and found that they were O.K. and explained that the wiring must be out of order. Imagine my surprise when she told me that her home was not wired. She had taken the lamps and set them up on the table exactly as they were shown in the window but they would not burn. It was too good an opportunity to be over-looked and I closed a service contract with her at once.'

"Another old man dropped into the same place and explained with some elaboration that the lamps burned because 'Dere's maggots in 'em'."

Newfoundland Conforms to 60-Cycle

Another step toward uniformity in the North American power supply picture was taken by Newfoundland in an announcement that only 60-cycle power will be produced in the province. This came as a result of the decision of two large paper companies to buy blocks of 60-cycle power and convert part of their mills from 50-cycle to 60-cycle operation.

National Grid Comment

In a statement issued shortly after his election as president of the Canadian Electrical Association, J. M. Hambley, general manager of Ontario Hydro, made the following comment regarding the possibility of a

national power grid.

"Although studies to date do not appear to establish the early economic feasibility of a complete trans-Canada, high voltage grid, the development of sections of such a grid, which could be profitably utilized immediately upon completion, deserves the vigorous support of governments concerned. One of the many advantages of such action would be the harnessing of a number of important hydro-electric sites in the more remote areas of the country, and possibly, the utilization of domestic coal supplies which are now dormant due to high transport costs. As spokesman for the electrical industry, the CEA has an important role in this proposal."

High Cost of Underground

In recent remarks to the city's Committee of Works, Bertram Merson, chairman of the Toronto Electric Commissioners, had some sobering statistics to present on the cost of underground distribution in built-up areas

"On a main traffic artery", he said, "to place our installations presently supplied from overhead lines on

cedar poles, completely underground, costs anywher from \$25 to \$100 per linear foot."

Mr. Merson emphasized that the high cost had not deterred his utility from proceeding with undergroun construction on a systematic and continuing basis but on such a scale as not to affect the cost of power to customers. He gave this resume of progress: on the basis of capital investment, over 60 per cent of the distribution system is underground; 50 per cent of the load is supplied by underground facilities; 325 transformer vaults are installed under sidewalks; 475 vault are installed in apartment and commercial building or on private property.

In terms of dollars, Mr. Merson noted that in the period from 1949 to 1963, underground facilities to the value of approximately \$28 million had been in stalled. About \$2,200,000 was budgeted for this purpose in 1964. He said that in the only areas in Toront where redevelopment had taken place, all facilities

were underground.

Liaison Officer Suggested

Speaking at the summer conference of the AMEU, hel at Bigwin Inn, in June, Alex DeMaio, manager of Or tario Hydro's A. W. Manby Service Centre, reveale that the Commission is appointing a technical man a a fleet supervisor in each region. He will assist in vehic

management.

Mr. DeMaio suggested that the AMEU as a groumight explore the possibility of establishing a liaisc officer between Ontario Hydro and the AMEU to provide information to the utilities based on Hydro's experient and research in the field of vehicle operation and main tenance. Mr. DeMaio cited the sales area as an examp of the kind of co-operation he had in mind.

Energy Production in June-July

Primary energy provided by Ontario Hydro in June totalled 3.20 billion kilowatt-hours, an increase of 10.0 per cent over the same month a year ago. In July the figure was 3.15 billion kilowatt-hours, an increase of 8.6 per cent over the same month last year.

For the first 7 months of 1964, the total is 23.43 billion kilowatt-hours, up 8.4 per cent over

the same period last year.

Adjusted for seasonal influences, primary energy demand in June was 3.41 billion kilowatthours, 4.2 per cent more than the previous month. In July, it was 3.42 billion kilowatthours, .1 per cent more than June.

The seasonally adjusted total for June represents 40.98 billion kilowatt-hours at annual rates. This is 294.6 per cent of the energy demand in 1949. Allowing for seasonal influences, the July energy demand, projected at annual rates would result in an output of 41.01 billion kilowatt-hours. This is 294.8 per cent of the energy demand in 1949.

OFF THE WIRES

■ Everything from mothers-in-law to green cheese seems to have a special week on the slogan calendar in this enlightened age but October 4 to 10 is a date of genuine significance. This is Fire Prevention Week when industry and individuals across the country will be asked to "Think About Fire".

And well they might since, according to the fire prevention people, Canada has one of the world's worst fire loss records. One place to start thinking about is the electrical system. Statistics suggest that 3,110 fires were caused by electricity in Ontario in 1963. While this is less than two-fifths the number of fires started by cigars, cigarettes and pipes during the same period, there seems to be a tendency to attribute fires of unknown origin to electrical causes when later investigation reveals that something else was responsible. By then, of course, the damage is done since the news media have already flashed the word far and wide.

But so long as one fire can legitimately be attributed to electrical causes, there is need for public education. As with traffic accidents, the great majority of electrical fires can be traced to human frailties. And the ignorance evidenced by many in the handling of electricity is appalling.

Most fires of electrical origin occur in premises where the owner has made his own alterations or additions or allowed the electrical system to deteriorate.

Surveys indicate an alarming incidence of homes with over-fusing. Inspectors have come across places where fuses have been bridged with copper wire, coins, tin foil and even lead. Lamp cords have been used for permanent wiring, often nailed or stapled to walls or ceilings and run under rugs and behind curtains. "Octopus" connections and badly cracked or bare appliance cords are other common faults.

Like gasoline, medicine, cleaning fluid and a dozen other household necessities, electricity is perfectly safe when handled with a modicum of common sense. It is unfortunate that this commodity is not in greater supply.

■ If sound sleep is any indication of a clear conscience, then at least one Hydro lineman is as innocent as a newborn babe. A guest in a Port Credit hotel,

he was awakened by a fireman smashing the window of his second-floor room. By that time the fire, with all the attending hullabaloo, had been in progress for two hours. Nor had the Simon-pure lineman heard the hotel manager who ran through the building knocking on doors to alert the guests.

Hydro sales personnel are working hard to sell electric heating to motel owners and builders across the province— and with considerable success. That's part of their job, of course, but there is one way every Ontario Hydro and municipal utility employee can help out and that is to patronize resorts and motels where this kind of heating is employed. Hydro personnel in the province number about 24,000 and a demonstration of faith by a group this large cannot help but react to the advantage of all.

With this in mind, Ontario Hydro has prepared a handy guide listing all 350 electrically heated motels, resorts and lodges throughout the province together with a map and a mileage reference. It will be kept up to date with frequent revisions. Distribution will include travel bureaus and other outlets concerned with tourism as well as Hydro employees. Utilities may obtain copies through the regions.

Not that there is any sacrifice involved. In addition to enjoying the superior comforts of electric heating, employees staying at such resorts and motels will frequently find the forward looking attitude of the management reflected in the service right down the line.

■ Golfing duffers who have to limit their fairway frolics to weekends can take heart from a Lynnfield, Massachusettes development. This was the site of the world's first professional golf tournament to be played under light and it seems to indicate that electricity will indeed continue to extend our daytime activities as



suggested in this month's article, "Lighting Up For Business".

The Colonial Country Club at Lynnfield is one of the first regulation courses to be illuminated for nighttime golf. At present, only nine holes are lighted but the owner plans to include all 18 holes soon and to extend the system to four other golf courses he operates in New England.

Supplied by Sylvania Electric, the iodine-quartz lighting system cost approximately \$55,000 for nine holes and power consumption is about 120,000 kilowatt-hours per year.

Aside from its attraction as a utility load builder, night golf should provide erring husbands with a new excuse for tip-toeing in at 3 a.m. And that's about power for the course.

■ Reading back over the January-March edition of Hydro News, 1964, we came across an item of some significance which, apparently, hardly raised an eyebrow at the time. This was the Commission's anouncement that it was "reluctantly compelled to arrange with the major industries to reduce their loading on the system by fifteen per cent." Subsequent summer rains, the item went on, could relieve the situation, but a dry summer could lead to even more stringent measures.

In actual fact, Ontario Hydro has all the power the province requires. The Hydro News we were reading is published by the Hydro-Electric Commission of Tasmania and much of this particular issue was devoted to restriction of power supply to customers occasioned by an unprecedented dry spell.

Seems like another good argument for a well-balanced system in which there is sufficient thermal-electric capacity to protect against the caprices of nature.

■ According to the Dominion Bureau of Statistics, both husband and wife are in the labor force in one out of every five of Canada's nearly four million families. Predictably, the husband is reported as being in the labor force in 88 per cent of these families where both husband and wife are present. But the most fascinating of the statistics, to our mind, is the 50,199 families in which the wife but not the husband is in the labor force. If this is a trend it should not be discouraged.

CHIEF LIBRARIAN
PERIODICALS DEPT
UNIVERSITY OF TORONTO
TORONTO 5 ONT



THINK ABOUT FIRE

Fire Prevention Week is October 4 to 10, when Canadians from coast to coast will be asked to think about fire and the appalling loss of life and property which follows in its wake.

One place to start thinking about is the fuse box. Recent home inspection surveys by fire department teams in representative municipalities indicated that the wrong fuses are being used in hundreds of thousands of homes in Canada. Of the homes inspected in eight communities in one metropolitan area, about 25 per cent were over-fused.

Electricity, like medicine, is perfectly safe when properly prescribed. The fuse protects your electrical circuits against an overdose. They cost less than 10 cents. Why bet your life when all you can win is a dime?





These two pretty members of Western Region staff appear to be holding huge sign adjacent to new regional office building in London which was officially opened in September. For details of the new building see page 14.



Cleared right-of-way is for new road south from Abitibi Canyon, which next fall will connect the Hydro community with the provincial highway network. But life is not over for the venerable railroad coach which for 14 years faithfully served the settlement as its only connection with the outside. Its future—plus a look at other improvements underway in the Canyon—are outlined on Page 12.

OCTOBER, 1964

ONTARIO HYDRO NEWS

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THE COVER

The imposing entrance to Windsor Utilities Commi sion's new control centre is featured on our cove. The centre is one of three new buildings open recently to serve expanding power needs in Sou western Ontario. These new facilities, and the cer monies which marked their openings, are describ on following pages.

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electricity on the job

RONIC

by PETER CALKIN

Finding a way to teach more in less time is the big task facing today's educators.

Seated at a console with monitor screens and adjustment controls at her fingertips, the classroom manager tapped a switch and spoke quietly into a microphone. She was addressing an intent 12-year-old at the back of the room . . . " You misunderstood the question, John, order a replay." Fingers, young with uncertainty, flew as they dialed a television replay of the causes of the fall of the Roman Empire which the boy watched on the personal receiver at his desk. Cleopatra would have been delighted. Three rows over, a girl with flushed cheeks murmured into a screen at her desk and was rewarded with a green light that signalled success. Her electronic slate contained the correct solution for "X" in the equation. The study period nearly over, the classroom manager wrote with a grease pencil on the projector at her desk and "tomorrow's assignment" appeared on the blackboard screen at the head of the room.

Science fiction? No, just tomorrow's assignment . . . to bring the age of electronic miracles to the classroom.

All these teaching aids already exist and have been used experimentally in North American schools. The classroom manager is an exception. She will evolve as her teaching role is modified to that of guiding the educational process with the aid of teaching machines.

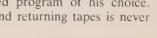
But will tomorrow's teacher, or classroom manager, be a pusher of buttons, a feeder of taped television films? No, she will be a highly qualified expert on the care and feeding of young minds and she will be needed more than ever.

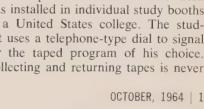
This peek into the future is based on today's demand for more education from the time available in crowded classrooms. Helping to meet the demand are electronic laboratories which are turning out "instant information" . . . canned or computer programmed. and the machines to dispense it.

While most electric teaching aids now available do not require anything more elaborate than a classroom desk and power outlet, those of the future will be a part of each desk. More information will be at the student's finger tips than former students were able to carry home during a decade of home-

One of these future electronic aids is a combination closed circuit television receiver and facsimile service built into a study desk. A student simply dials a central library serving several schools and requests material to be sent via cable and reproduced on his personal TV screen. Similarly, a teacher can dial for information to appear on her electronic blackboard.

A simplified version of this desk was installed in individual study booths at a United States college. The student uses a telephone-type dial to signal for the taped program of his choice. Collecting and returning tapes is never







a problem because the student does not handle them.

In addition to the electric aids installed permanently in his booth, the student can plug in portable units such as teaching machines, record players, tape recorders, radios, slide projectors and movie projectors. As this system grows it is expected to become more sophisticated and employ information carriers such as "facsimile reproduction."

Facsimile service was made available in Quebec and Ontario by Bell Telephone two years ago and is used mostly by businesses that require exact reproductions. Any kind of printed or written material of any color or texture can be transmitted between stations which are connected by ordinary telephone cable and employ a "dataphone" to signal the beginning of a transmission.

Reproduction is on paper at the receiver and can be used immediately on receipt. Basically, this is the type of system used by newspapers for transmitting wire photographs taken thousands of miles away and appearing on the front page an hour or so later.

While facsimile has not been coupled to a television receiver commercially yet, it is a practical extension of the system. The present facsimile is being eyed by some large school systems who see an advantage in being able to send printed material from a central source to several schools without delay.

Radio and television broadcasts are also likely to play an increasingly important role in Canadian education. This fall marks the beginning of the second decade of school TV by the Canadian Broadcasting Corporation. Its half-hour, twice-weekly programs are produced with the advice of the National Advisory Council on School Broadcasting, which is made up of representatives of the 10 provincial departments of education.

Among the subjects to be presented this season are Shakespeare, physics, poetry, physical education, oceanography, social studies and zoology. In addition, three half-hour periods are provided by the CBC each week during which the provinces can present locally produced programs or films of an educational nature. Over 1,000 classrooms in Ontario are equipped

with television receivers.

In explaining the purpose of t school broadcasts, Dr. F. B. Rair berry, supervisor of the CBC's Scho Broadcasts and Youth Programmir says:

"Radio and television are resourc which can enrich the lives of teache and students in the process of lear ing. Each medium has special pr perties which can enliven the cormunication between the teacher as his pupil. The program series a designed to provide experiences of the classroom which are not likely be readily available elsewhere. Wi careful planning, teachers and pup can have learning experience whis will intensify the communication knowledge and deepen the sensibility for creative living."

So far, the demand for a specitelevision system for Ontario school has not been great enough to warra the expense of setting it up. Howeve with an eye to the future, the Metr politan Educational TV Association Toronto has had the Board of Broacast Governors reserve Channel 1 (UHF) for education.

McMaster University in Hamilton



ients and diagrams.

Even more advanced use of closedrcuit television is planned for Metro oronto's Scarboro College, which is open in 1965. In addition to watchg lectures produced in a central udio at the new school, students may rentually be able to see and hear ctures from other colleges and uniersities within the provinces. It is pped to have the closed-circuit rains-exchange" system in operation 1972.

In the United States, more than),000,000 pupils of all ages were enlled in educational closed-circuit telesion classes in 1962-63. Many of the 32 systems link more than 100 hools. Broadcasts on 84 non-comercial channels have made educationprograms. available to 100,000,000 nericans.

Electronic slates for individual stunts are a simple extension of teach-3 by television techniques. The stunt has only to mark on glass with grease pencil and the marks are Djected, at whatever size is desired, monitor sets at the teacher's control nsole. This can be used in conjuncn with an electric teaching machine ich will present the question to be

solved and signal a correct answer. Electronic computers play an important part in such a sophisticated system.

Elaborate teaching machines of the computor type have terrific potential, according to some teachers. These machines can even interpret a student's answer or solution to a problem. In a recent U.S. experiment, a group of youngsters was taught to read with the aid of computers in just 30

Such things as microfilm readers that reproduce a film on a televisionlike screen are already in use in many large Canadian schools and most libraries. The language laboratory has been using electric equipment for years now. And a Toronto school is employing induction loops which free the listener to move about while holding a wand that contains an amplifier and ear plug. As long as the listener is within the wire loop in the room, he can pick up the broadcast or recording.

One educator who views this evolution in education without panic is Bruce Adams, head of the teaching aid department of the Toronto Board of Education.

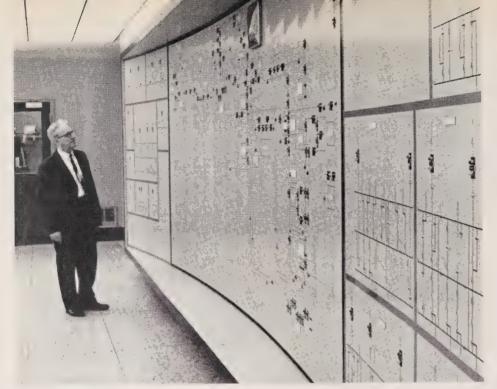
"There need be no fear on the part of teachers that these machines will take over," he says.

He predicts that the teacher will change his role to that of manager of the learning process . . . will be freed of the routine mechanical chores of repetition handled by the machines . . . will, in fact, only teach the creative part of a course.

"At the same time, I would like to put in a word in favor of retaining something of the present," he adds. "I don't agree that everything can go into a central computer. A student is not able to learn everything by himself — he needs a teacher to talk to him about individual problems. A child has to come back to a check point in his learning."

Most educators are agreed, however, that there is a need to explore and understand more about man's learning processes. Radical new ways must be formed to enable students to study and absorb the enormous flow of data being generated in today's society.

Electronics are one of the most promising media since the electric technologies are really only extensions of the human nervous system.



Vast, curving display panel features Windsor's futuristic control centre.

MODERN CONTROL CENTRE

"Built on a firm foundation" was the slogan chosen by the Windsor Utilities Commission for its 50th anniversary celebrations — and it can be taken quite literally where the new control centre is concerned. Officially opened in conjunction with the half-century observances, the centre stands on the durable concrete which previously supported the original substation built to handle the city's first Hydro power.

But only the foundations are old. Every other aspect of the utility's new nerve centre is as modern as tomorrow.

Most striking feature of the control room is a vast, curving display panel occupying most of the wall in front of the twin operators' desks. Over 24 feet long and seven feet high, the panel portrays the "backbone" circuitry of the system with the condition of the most important switches and power lines clearly indicated by several hundred colored lights. The operators control the display with switches at their desks.

Describing the function of the display panel or "big board" in layman's terms, H. R. Soutar, chief engineer of the Windsor Hydro system, says that normally the operators will cause it to reflect the system as it actually is at the moment, and they will indicate

each change as it occurs.

"Day by day," he explains, "linemen and cable splicers make additions and improvements to the system in various parts of town. New customers are picked up and maintenance men remove equipment—even substations—from service and restore them without interruption to the electrical supply. We must guarantee, of course, that the lines and equipment concerned are 'dead' and will remain so while this work is carried out. The board is thus an ever-present reminder and reference."

At other times the board is used as a proving ground. A whole series of switching orders will be tried out before the work gets underway in the field. This ensures that the orders contain no "bugs", that the response of the system will be as intended, and that the actual work will be trouble-free when performed.

Chosen for its flexibility, the display panel is made up of 25,000 one-inch squares of plastic mounted on a perforated base. Some of these are fitted with colored lights, some are marked with colored lines or other symbols and, of course, some are plain. The squares can be fitted or removed with the fingers and while wiring the automatic features of the lights takes more time, it follows a straightforward code so that the big board need never be out of date.

WINDSOR BUILDS

The old and the very new sh

Seated facing the board, the two perators have radio and telephon at hand, while complete drawings the system are within easy reach. A array of lights at the console flash warning in case of serious trouble.

In addition to knowing where the power is flowing, the operators much who who would be and in the case the new Windsor control centre, the is handled by a sophisticated devicalled a data-logger. Essentially, the is an automatic "typewriter" which connected by communication circuit to 26 points on the system. The typewriter records load data on all keep feeder lines throughout the city at tabulates total loads and incomivoltage levels at any required intervi

"To get the same results with mo conventional recording instruments Mr. Soutar says, "we would require more complex and costly installatic This system is compact, easy to re and, above all, flexible. It quickly pi points operating irregularities and i stantly indicates system peaks."

The control building is situated the utility's modern service cent which occupies almost an entire collock and includes garage facilities for the servicing some 6,500 meters annual a transformer reconditioning section warehousing and all the other requirements of a smooth-functioning, modern electrical distribution system.

IRM FOUNDATION

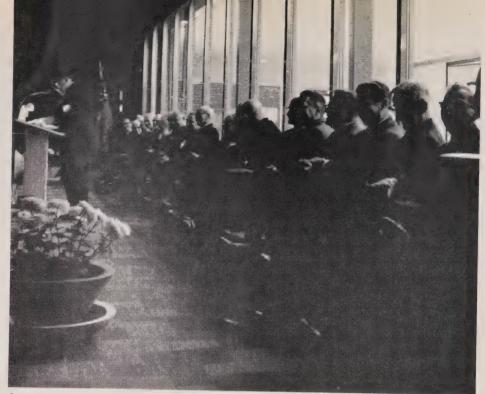
t in these dual celebrations.

O YEARS OF PROGRESS

you lived in Windsor and read the ewspapers, listened to the radio or atched channel 9 during the second eek in September you had to be vare that big things were astir on the cal Hydro scene. And so they were. In addition to the official opening the futuristic control centre, it was ne to celebrate 50 years of Hydro in indsor and the utilities commission ade good use of the occasion to tell story of progress.

Spot announcements and press tices invited the public to attend an en house at the service centre and se were supplemented by generous pporting coverage in all the news edia on the development of Hydro the border city. Also stimulating inest in the 50th anniversary was a play of antique electrical items at utility's handsome, down-town ice building, which itself had been rmanently floodlighted in time for coccasion.

Proclaimed "a good show" by huneds who flocked to the service centre turday afternoon, the open house ovided more than a static glimpse o a working theatre with which most ttors were unfamiliar. Not content h scrubbing and polishing the eral buildings and vast array of ipment associated with the sprawl-



Impressive opening ceremonies coincide with anniversary celebrations.

ing service complex, utility personnel volunteered to man the various work stations and they were on hand to deal with the many questions of a curious public.

Strategically-posted signs also helped inform the visitors of the kind of work being carried out in each location. Posters on the scrap bins, for example, indicated how the utility saved about \$10,000 annually through the sale of used equipment and materials. For many it was their first opportunity to see the various types of street lamps in operation at close range and they were intrigued, too, by the gyrations of the big truck-mounted aerial units and other mobile equipment. Many capped their visit with steaming hot coffee brewed in a Cascade 40 water heater. They were able to take home well-turned-out brochures outlining 50 years of Hydro progress.

To the many official guests of the Windsor utility, the highlight of the celebrations came on the eve of the open house when ceremonies were held marking the official opening of the new control centre. Sharing guest speaker honors with Ontario Hydro Chairman W. Ross Strike, J. Clark Keith, manager of the Windsor utility from 1935 until his retirement in 1955, gave a colorful account of local Hydro developments. Mr. Keith, who has some 40 years of municipal utility service to his credit, was honored in

1951 when his name was given to Ontario Hydro's big thermal-electric station at Windsor.

His address emphasized the early struggle to establish the Hydro concept of public ownership and the competition which has existed in Windsor since the advent of Hydro power on August 20, 1914. Mr. Keith quoted from the inaugural address of Mayor Hanna, January 10, 1910, to make his point. "The power matter should not be lost sight of," the mayor stated. "Although we now have natural gas in abundance, it may happen that Niagara power may be desirable."

The electorate voted in 1910 to bring Hydro power to Windsor and the speaker referred to the Windsor Record to describe the event. Tabbed "the hottest fight ever waged in Windsor", by the newspaper, the account went on to relate how the use of Hydro was vigorously opposed by private interests. Every automobile owner in the city was called upon by one side or the other to lend his machine to ferry voters, "and the streets were full of flying wagons all day." Public power carried the day by a scant six votes. Hydro continued to meet stiff opposition from private electrical distributors who lowered their rates step by step with the municipally owned system until 1920. As Mr. Keith recalled it, the rival systems paid their employees 50 cents for each service diverted from





Twin operators' desks, above, face giant display panel in new control centre. Strolling through the utility's vast service centre, left, are: W. S. Mullin, general superintendent, Hydro Division; J. M. Hambley, general manager Ontario Hydro; and John E. Teckoe, general manager, Windsor Utilities Commission.



This trio of Windsor Hydro Commissioners is examining a "time capsule" installed at the new control centre in which material commemorating the occasion will be sealed. Left to right are: F. A. Burr; R. R. Hicks, chairman, and M. J. Brian.

These were among the speakers at the Windsor celebrations. Left to right are: J. W. Hammond, president, AMEU; D. P. Cliff, representing the OMEA; J. Clark Keith, retired Windsor manager; and W. Ross Strike, chairman, Ontario Hydro.



its competitor and customers frequently refrained from paying their bills until their credit was exhausted. Then they would switch to the other supplier.

On a similar theme, Ontario Hydro chairman W. Ross Strike said that the early years of Hydro in Windsor were not easy and he thought that the progress achieved by the utility in the face of strong competition reflected great credit on the people who directed local Hydro affairs. He recalled that Windsor had sponsored a strong resolution urging Ontario Hydro to promote the use of electricity for heating "at a time when we did not look on the use of power for this purpose with much favor." He acknowledged that plenty of support would be forthcoming today.

In his wide-ranging address, Mr. Strike traced the growth of the Windsor utility, pointing out that the monthly use of electricity per residential customer had increased from 39 kilowatt-hours in 1915 to 323 kilowatthours in 1963. He said that this was still below the provincial average but a remarkable showing in the light of the early and continuing competition Hydro has faced in Windsor.

The present utilities commission was formed in 1935 when the municipalities of East Windsor, Sandwich and Walkerville amalgamated with the City of Windsor. Since 1955 its administrative affairs have been directed by John E. Teckoe, a past president of the AMEU and one of the deans among municipal utility managers in the province.

With 41 years of municipal Hydro experience, John was literally born into the Hydro family as his father was manager of Niagara Falls Hydro for many years. John recalls driving around Dereham Township in a buggy signing up farmers to Hydro contracts. He had been manager at Tillsonburg and Galt before coming to Windsor.

Of all utility functions, John regards good planning as the most difficult and important.

"I envy those charged with planning educational facilities," the Windsor manager told Hydro News, "they can count young noses and act accordingly. We must base our estimates on past experience and call on all our resources to predict the future.

"My father used to say that he co never remember a system being ov built in the long run. I think this vice still holds and in Windsor we to to take the optimistic view."

His management philosophy is bar on teamwork. "Ours is the antithe of a one-man show," he says, "eve body is given a hearing and we try involve as many as possible in chart our moves."

Mr. Teckoe is particularly proud the financial record of the Wind

"We have operated on a 'pay as ; go' basis since 1935 when our c debenture issue, required to constr the original distribution system, paid off.

"In effect," he said, "we have b up a public holding worth more t \$30,200,000, entirely debt free, fi \$100,000 dollars borrowed prior the arrival of Hydro power.'

As the anniversary slogan sugge the Windsor Utilities Commission indeed "built on a firm foundati and one which is likely to bear equally well in the half cent ahead.

DRIFTING

Great oaks from little acorns grow—
and for this reason, power lines and
inderbrush make a poor combination.
Allowed to flourish unimpaired, such
rowth would soon prevent access to
he rights-of-way and eventually interere with the conductors, causing
ostly interruptions to the vital elecrical supply over wide areas.

In maintaining some 60,000 miles of power lines, Ontario Hydro conucts the largest brush control proram in North America. To do so at the least possible cost, improved methds, materials, and equipment are onstantly being developed. Perhaps the most dramatic break-through came in 1956 when Hydro commenced oraying chemical herbicides from heliopters in remote areas of the provlice.

Since then, aerial spraying has been sed extensively but drifting has been limiting factor. In the past, almost ead calm conditions were necessary gusts of over three miles an hour ould carry the spray far off target. In dit cost a lot of money to have ese aircraft grounded awaiting ideal praying conditions.

At least part of the answer has rently been discovered.

After two years of extensive experients by the Organic Research and e Forestry Departments, a viscous ray has been developed which can applied by helicopter in winds up seven miles an hour without drifting. In thickened material clings better to be foliage, doesn't wash off in light in and seems to have a better as-illation into the leaves.

Last June, experimental helicopter spraying with the viscous herbicide was conducted over 2,200 acres of rights-of-way in Northwestern Ontario. In one day, three pilots, flying two helicopters from dawn to dusk, made 40 flights with each machine. They sprayed more than 340 acres or over 28 miles of 100-foot-wide right-of-way.

In comparison, a ground crew working with a muskeg tractor over the same terrain and in the same time could only spray about 20 acres or 1.7 miles.

"It must be acknowledged, however, that application by helicopter kills only about 65 to 75 per cent of the brush whereas our ground crews achieve up to 95 per cent effectiveness," says Jack Winter, Hydro's chief forester. We are experimenting right now with this modified herbicide with our hydraulic ground equipment and motor mist blowers and hope to have this procedure operational very shortly."

The improved brush killer will be used in remote areas of the Georgian Bay Region, as well as the Northeastern and Northwestern parts of the province.

The chemicals used in any Hydro herbicide are the non-toxic, hormone-types, Jack explains, which produce accelerated growth and the eventual death of the plant, but do not harm wildlife. Neither do they harm grass, while the low-growing plants initially affected, return quickly, presenting the pleasant appearance of meadowland.

Sprayed rights-of-way provide forage for wildlife, forest fire breaks and, in remote areas, access to the bush. □

IS THE PROBLEM





by JACK BOITSON

When it comes to haggis, good whisky and curling stones, the credit or blame belongs to the Scots. Haggis they can have, scotch we'll be happy to import, but curling stones — that remains to

The Scots gave birth to the 'Roaring Game' as early as the 16th century, according to some accounts, and they were canny enough to convince everyone that the only granite suitable for the manufacture of curling stones happened to be located in Scotland. They have supplied those portions of the world addicted to this pristine winter pastime ever since.

Outrageous as it may seem, a tiny company with big ideas and a deposit of rare granite in Northeastern Ontario is drawing a bead on this Scottish monopoly. Armed with orders for about 500 curling stones, the River Valley Stone Manufacturing Company, 20 miles north of Sturgeon Falls, is all set to commence production. Prototypes have been tested extensively and are said to comply with all the necessary standards.

It all came about when River Valley resident Claude Larcher, who operates a small logging and lumber business, set out in search of some horses which had gone astray. An amateur prospector, he was intrigued by the unusual texture of a rock outcropping he came upon in the rugged hills near town. Nothing happened when he chipped at it with the back of his axe. Only after hard and repeated blows was he able to break off a small chunk.

Unfamiliar with its gray-black color and very fine grain formation, he stuck the rock chip in his pocket and continued in search of his wayward animals.

Later, Claude showed his find to a friend, Hector Giroux, who owns a general store in River Valley.

"I knew right away what it was black granite", Hector recalls. "I thought there might be a use for it, so we returned to the spot, about six miles out of town, and staked out about 90 acres altogether."

Samples were sent to the Department of Mines and Technical Surveys in Ottawa for analysis. Word soon came back telling them they had indeed found granite of extreme hardness and fineness.

Adds Hector, "I believe our granite surpasses the world-renowned 'Black Swede' Granite, which up to now was the finest available for ornamental stone work."

Along with its assay, the Mines Department suggested the granite might be useful for making curling stones.

"This was all we needed", says Hector. "When you consider that a pair of curling stones sell for \$120 and more, and that orders from Scotland take more than two years to be filled, you could say we had found a gold mine!"

But it's one thing to find a 'gold mine' — and another to make it pay. Just how do you make curling stones?

"We had a time of it," Claude Larcher remembers. "No one could tell us how to make them, or the kind of equipment we would need. Luckily, Pietro Allero joined us last year. He is a master stone-cutter from Italy."

Something less than an authority on curling stones himself, Pietro did have plenty of imagination and ingenuity. Using a regular curling stone as his model, he painstakingly fashioned two stones by hand from the black granit When they were finished, the stone were taken to the Copper Cliff Curlii Club for testing.

The crucial moment was at hand Throw after throw was made as the new stones glided along the i smoothly, flawlessly — but straight an arrow!

"No matter how many times v tried, the stones just wouldn't curl recalls Hector. "We almost broke dov and cried."

Very carefully the stones we measured, compared to the Scotti ones, probed and poked at, but st the "something" that makes curli stones swing lazily from the straig line to the left or right, at the curle command, was missing.

"Out-turn or in-turn, the delive made no difference, they just sail along with no-turn" adds Hecto "One of us finally noticed that t lip of the cup on the underside of t Scottish stone was not highly polish — ours was. We roughed up the a little, tried it again, and bingo! it curled beautifully!"

So they got on with the job designing production. This proved be a matter of modifying and adapti equipment intended for other purpose Suitable stonemaking machinery, seemed, was not to be had at t nearest dealers.

A hydraulic wire saw is used cut the quarried granite into slabs fiv and-a-half inches thick. Cores inches in diameter are cut from t slab with a diamond bit. At this sta the product resembles a stone-a wheel.

A shaper contrived from a born mill shaves the edges, or shoulders, that the granite now roughly resemb

a curling stone. It's taken next to a polishing machine where the final inish is imparted.

"Trial runs suggested our producion methods would work", says laude. Our next problem was power. Ve talked to Cliff McConnel, Hydro nanager at Warren, and he suggested hat a three-phase, 550-volt service vould be more than adequate. When his is installed we plan to hire six men nd begin full-scale production."

In 1962, Canada imported around ,000 curling stones from Scotland. and delivery was slow.

"We're aiming for an initial annual roduction of 2,500 stones" says lector. We will be able to sell a pair or about \$110."

As well as curling stones, the fledglng company plans to produce a variety f ornamental stonework such as firelaces, steps and patio stones. Addional uses for the granite are also eing explored.

Optimism is no crime, of course, but iere are some rather formidable obacles to be overcome before River alley will bring furrows to the cottish brow in the matter of curling ones. Sheer cussedness on the part the curling fraternity is probably ie. Purists all, they will be reluctant sweep aside tradition where the rious business of stones is concerned. And the River Valley product repsents something of a departure in lor and size. Almost jet black, the ones are also slimmer than their ottish counterparts. Because of the ack granite's greater density, the oulders of the stone had to be shaved order to meet the specified weight, nich is approximately 40 pounds. At e same time, the diameter was reired to conform with curling stand-







River Valley partners Hector Giroux (left) and Claude Larcher, display a black granite curling stone which they hope will sweep away Canadians' traditional choice of Scottish granite. Lines of the Ontario curling stone contrast with those of imported product, although both weigh the same. From its quarry, 20 miles north of Sturgeon Falls, the company also plans to produce a variety of ornamental stonework when in full operation.

ards as was the height to the handle.

Gaining acceptance will take some doing in a pastime where reddish Scottish granite is about as traditional as the thirst-quenching ritual at the end of the game. But the River Valley partners are confident.

"We know our product is good," they say, "we've been sending samples

to curling centres across the country and we think it's just a question of time before our stones become a curling by-word in Canada."

Even if they are only half right they could be on to a good thing. Estimates suggest that nearly a million Canadians took to the brooms last winter.

WATERLOO

looks to the future



In a joint effort, above, left to right, Ontario Hydro Chairman W. Ross Strike, Mayor James Bauer, Howard Herter, comissioner and H. M. Scheifele, chairman, officially open Waterloo PUC's new headquarters which are shown at the right. The \$267,000 office and service building houses facilities for both water and electrical departments.





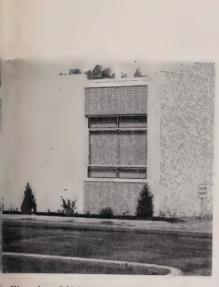


Handsome new electrical-heat service centre provides for today and tomorrow

The "Hartford of Canada" is fast becoming the "Oxford of Ontario", as Waterloo, the home base of six major insurance companies experiences a major explosion of its student population.

Two universities and five colleges located within the city boundaries are drawing more and more students each year. It is estimated that by 1970 total enrolment will be close to 15,000. One of every four persons living in this progressive city would then be busy preparing for tomorrow — academically.

And the future is also very much to the fore in the thinking of the Water-loo Public Utilities Commission which has recently taken a major step towards ensuring a continued high level of service. With the opening of a \$267,000 office and service building, all functions have been brought together in a single efficient centre



: Waterloo PUC Chairman Scheifele weles some 200 dignitaries attending the ial opening. Left, below: already at home he new boardroom are: from left to right: 5. Durnan, Howard Herter, commissioners; Bradley, manager; Mr. Strike; Chairman ifele, W. G. Woods, secretary; James eman, commissioner; and Mayor Bauer.

w: this truck port, capable of housing eight cles, is located at the rear of the building. ill provide ample protection even during winter months. Bottom: standing at the resion counter, Gerald Knorr, sales repretive, is wearing his new blazer, a garment thy purchased by staff and commissioners.



equipped with the latest aids to modern utility operation.

In this instance, the Water Department is the landlord. "Ten years ago, we decided to revamp our waterworks program and added new trunk mains and a pumping station," explains Ivan Bradley, PUC manager. "Ever since that time the Water Department has been in a very healthy financial position. In our case, the Electrical Department, which accounts for 60 per cent of our operation, is the tenant."

Located on almost three acres of land, the one storey building features an attractive field-stone entrance. The exterior is finished in pre-cast concrete panels sectioned by blue brick.

Inside, 15,000 square feet of floor space provides working area for both office and service departments, while an attached truck port is capable of sheltering eight large vehicles. "We got this idea from an article in Hydro News," said Mr. Bradley, "which pointed out that indoor storage for utility vehicles was unnecessary. If indoor storage actually accelerates corrosion, why should we go to the added expense of a heated garage?"

Blue desks and filing cabinets, visible from the attractive reception area, brings color to the all-white general office which is illuminated by fluorescent lighting. Examples of the furniture craftsmanship for which Kitchener and Waterloo are renowned. are to be found in the boardroom and in the offices of the manager and secretary-treasurer. A special feature of the main office area, which is located at the front of the building, is an interview room where customers can discuss electric heating or water heater rental with the utility representative in private. There is also a spacious cafeteria and kitchen for the 49 employees.

Located at the rear of the building are the various service departments such as the machine shop, meter shop, supervisors' offices, Water Department's testing laboratory and stock room.

The main office is heated by an electric furnace supplemented by duct heaters. This area and the adjoining offices are completely air-conditioned. Ceiling units provide the service section with comfortable warmth.

In his address at the official opening, Ontario Hydro Chairman W. Ross Strike reminded some 200 guests that

Waterloo was the cradle of Hydro in Ontario. He asked them not to forget the early advocates of public power, E. W. B. Snider, Daniel Detweiler and Sir Adam Beck, who were all associated with this city.

"Waterloo was one of the original 14 municipalities to buy power from Ontario Hydro," said Mr. Strike. In sketching the development of the local utility, he said that a contract had been signed between Ontario Hydro and Waterloo in 1908 for the supply of 511 kilowatts. First Hydro power was delivered on November 12, 1910. By 1963, electrical consumption had reached 23,075 kilowatts.

The Hydro chairman also quoted figures to illustrate how higher per customer consumption of electricity was inevitably reflected in lower rates. Between 1933 and 1963, average cost for industrial customers had declined from 1.2 cents per kilowatt-hour to .98 cents per kilowatt-hour.

Mr. Strike paid special tribute to a member of the audience, Eby Rush, whose 53 years of service with Waterloo PUC must be considered a record. Retired but still acting as a technical advisor to the commission, Mr. Rush was honored in 1963 when the Waterloo high tension transformer station was given his name. The speaker also praised the tradition of public service achieved in Waterloo by the Bauer family. Mayor J. S. Bauer is the grandson of Aloyes Bauer who served as Waterloo PUC's first chairman from 1910 to 1923.

In addition to the formal ceremonies, conducted tours of the new premises were held for the public on the two evenings following the opening. Manager Bradley and his staff, smartly attired in navy blue blazers complete with "Live Better Electrically" crests, were on hand to explain the various features of the utility's work.

A staff proposal, the blazers were such a hit that even the commissioners adopted the garb. Cost of the garments was shared equally by the commission and by the individuals.

The hundreds who participated in the tours were served coffee heated in a Cascade 40 water heater.

"Stability" is the Waterloo motto, according to the city crest, but the word hardly suggests the dynamic and aggressive spirit of the Public Utilities Commission in its approach to service and the requirements of the future.

ALL ABOAR

FOR LIVONIA - AVON - AND LAKEVILLE!



Life begins at fifty for this victim of the changing scene at Hydro's Abitibi Canyon townsite.

by LOIS LANE

Except for its triple-barrelled title, there is nothing very impressive about the Livonia, Avon and Lakeville Railroad. Only 13 miles long, it was formed this spring by residents of the three communities, near Rochester, New York, when they learned that local train service was to be discontinued. Plans call for the purchase of a diesel locomotive and the resumption of the freight service.

More interesting is the infant railroad's intention to buy an ancient steam engine for hauling tourists over the scenic route. A combination passenger coach and baggage car, built in 1914, has already been acquired for this purpose — and that's where Hydro comes in.

This venerable conveyance spent the latter 14 years of its life carrying personnel and equipment between

Fraserdale on the Ontario Northland Railway and the operators' townsite at Abitibi Canyon Generating Station. Purchased by Ontario Hydro from a Toronto equipment dealer in 1949, the Lackawanna railway coach shuttled back and forth over the threeand-one-half mile run until last year when the line was replaced by a road. A bus service now connects the townsite with the railway depot.

But the last run of Abitibi's Toonerville Trolley was only the forerunner of changes that are taking place in this isolated Hydro community, 70 miles north of Cochrane. The Canyon, as it is commonly known, finds itself in the limelight due to the construction of four new hydro-electric power stations in the area and its proximity to the northern terminus of the EHV transmission line.

Located three miles from the Canyon townsite, Pinard Transformer Station is already switching power from the new plants at Otter Rapids and Little Long into the EHV line and it will do likewise when the Harmon and Kipling stations are brought into service during the next two years. Transmission voltage will be stepped up to 500,000 volts. All four plants will also be remotely controlled from the Pinard nerve centre.

To handle the staff increase needed for these operations, a community development program is under way at the Canyon which includes the construction of nearly 50 new homes and additional facilities and services. Last year, 33 modern ranch-styled and twostorey houses were built and 10 more are being added this year. When home construction is completed in December, the townsite will have a total of 35 modern electrically-heated homes.

Extensive landscaping is being indertaken with the most significant physical change being the removal of a large hill which blocked the view of the headpond for most Canyon resi-

Medical facilities are also being improved. A two-storey hospital, overooking the river, is under construcion. It will include a ward, first-aid oom, X-ray services, doctor's office and examining room on the ground loor. Living quarters for the nursing taff will be provided in the upper torey. Other additions to this town of ome 70 families include a modern upermarket, a service building, water iltration plant, school extension and oaxial TV service.

Even more significant is a project low underway which will alter the vhole structure of life at the Canyon. lesidents are about to lose their comlete dependence on the Ontario Vorthland Railway schedule for outide excursions.

By the fall of 1965, a 45-mile-long econdary highway will be completed, unning from Abitibi Canyon to mooth Rock Falls on Highway 11. It vill also connect with a 27-mile access oad recently completed from Pinard Hydro's Little Long Generating tation on the Mattagami River, and ith an extension to the Harmon and lipling projects.

The new road will become part of 1e provincial network of highways nd in addition to providing the townte's first motor route to the outside orld, it will open a vast new terriry for mining, forest industries, tourts, hunters and fishermen.



This could be any new housing development in Southern Ontario, but the modern homes, above, are part of the building expansion at Abitibi Canyon, located 70 miles north of Cochrane. On the opposite page, is a reminder of by-gone days, for the Canyon railway was replaced by bus service to Fraserdale last year. Below is an aerial view of the community and power development. Abitibi will be connected to the provincial highway network when a 45-mile road south is completed next fall.



ACCENT ON SERVICE



The partnership between Ontario Hydro and the municipal utilities was symbolized in a button-pressing ceremony which officially opened the new Western Region office building in London. Left to right: J. W. Hammond, president AMEU; Hydro Chairman W. Ross Strike; Regional Manager Gordon McHenry and John McMechan, president OMEA. A crowd of 350 persons, including nearly 100 utility commissioners, attended the ceremony.



The New Western Region office building in London is equipped and situated to provide top-notch service to some 300,000 customers of Ontario Hydro and the associated municipal utilities in the southwestern part of the province.

Appearances are important and from the aesthetic point of view, Ontario Hydro's new Western Region office building is an asset to the City of London. But its primary function is service.

This was brought out in a number of references by Ontario Hydro Chairman W. Ross Strike at the official opening. He said the modern building would foster better communications between Ontario Hydro and the 86 municipal utilities in the thriving section of the province served by the Western Region.

More than 350 persons, including almost 100 municipal utility commissioners, watched Mr. Strike unveil the main entrance to the \$850,000 building at the close of a colorful ceremony.

Mr. Strike urged municipal utilities to make full use of the new facilities, strategically located about a mile from Highway 401 near the southern limits of London. He said the staff of the regional office was ready and able to assist the utilities at all times. Close co-operation was especially essential, he thought, in developing effective load-building programs.

Taking up the service theme, Gordon McHenry, recently appointed regional manager, said that the strong relationship between Ontario Hydro and the municipal utilities was the foundation of the Hydro family. "One of our major jobs," he said, "is to nourish that relationship and to offer as much assistance as we can to the municipal utilities."

On behalf of the 357 associated municipal Hydro utilities in Ontario, John McMechan, president of the Ontario Municipal Electric Association, and J. W. Hammond, president of the Association of Municipal Electrical Utilities, congratulated the Western Region on its new administrative centre.

Mr. McMechan urged OMEA representatives to strive for a greater degree of uniformity in policy between municipal utilities. He said this would help eliminate confusion among customers moving from one municipality to another.

Before the opening ceremon guests inspected the two-storey buil ing and the various functions carriout at the regional level were e plained. The new centre replac leased premises in downtown Londowhich had served as regional hea quarters since 1948.

In addition to providing unexcell staff facilities, the new building stan as an outstanding example of the a electric concept in a commercial app cation. The system of year-row climate control employed has alrea drawn considerable attention fro architects and builders.

Making triple use of electric ener for lighting, heating and cooling, t air conditioning system uses the he generated by the lighting system maintain building temperatures in separately controlled zones with or side temperatures down as far as fi degrees below zero. Below this poin a 100-kilowatt electric boiler supplements the heat pump and it helps t lighting maintain a minimum indo temperature when the heat pump not operating.

Air from the offices is drawn ov the lights through the ceiling duc electrostatically cleaned of smol pollen, dust and other impurition







Data processing centre (left) in new Western Region headquarters is hub of communications network which conveys information from area offices to large-scale computers in Toronto. Above, top officials at inlaid wooden wall map of region are from left: J. W. Young, consumer service and sales engineer; Mr. McHenry

nixed with outside air, cooled by a leat pump to 53 degrees, saturated by vater spray and forced at low pressure o the 47 zones throughout the buildng. Here the air is heated to the deired temperature by heat exchangers sing hot water produced by the heat ump in cooling the return air.

The heat pump has a capacity of 40 tons, and has no external heat ource. Electrical resistance heating nits are used only in those areas not ally air conditioned, such as corridors, torage areas, washrooms and entrance

rays.

Other features of particular interest visitors include a large floodlighted arking lot with the lights controlled y photo-electric cells. Parking in the own-town area had previously been problem. A spacious auditorium will e used for staff meetings, cooking chools, appliance demonstrations and ther large gatherings.

Western Region covers some 7,100 juare miles of Southern Ontario estward from Port Burwell, Woodock and Goderich. The regional staff lministers Hydro service to 86 munipal utilities with 217,000 customers nd also serves 80,000 rural customers rectly through 18 rural operating eas.

Indicating the remarkable growth of this area, regional power demands increased from 209,000 to 798,000 kilowatts between 1948 and 1963. This load growth has been accompanied by a number of changes introduced by Ontario Hydro to promote economy and provide better service.

Like other regional offices throughout Ontario. Western is the hub of a communications network which conveys information from individual area offices through its own data processing centre to large-scale computers in Toronto. As a result customer billing and payroll are now handled with great speed and accuracy.

Other major innovations have involved re-organization of several rural operating areas since 1957. In 1960, for example, three areas in Essex County were amalgamated with a calculated initial saving of \$70,000 a year. And Mitchell area was integrated in 1961 with Stratford, Listowel and Clinton areas at an estimated saving of \$59,000 yearly.

Western Region has also been carrying on a spirited load-building program to increase the sale of kilowatt-hours. One of its most recent promotional aids is an improved mobile sales coach which will see exten-

sive use this year at numerous Western Ontario fall fairs.

and J. W. Stiles, operations engineer.

Sales promotion, public relations, accounting, labor relations and consumer service are among those functions where liaison between the Region and the municipalities is particularly close.

And Western is taking on a new role as a "have" region in the generating field. For many years J. Clark Keith thermal-electric plant at Windsor, with a capacity of 264,000 kilowatts, has been the only generating station in the region. But by 1968, when the 1,000,000-kilowatt Lambton Generating Station near Sarnia is scheduled to augment Hydro's coalfired facilities, the region will have an important new responsibility.

It's a region that can look with confidence to the future and with pride at the past. One of the new building's main points of interest is a 9 by 15foot mosaic mural in the reception hall. Its central figure is Sir Adam Beck, once mayor of London and the first chairman of Ontario Hydro. His far-sighted views on the future of electricity in Ontario have been captured in the mural, which itself stands amid surroundings designed to ensure their fulfilment.



*HYDRO IN CONFERENCE

At district meetings across the province OMEA President John McMechan calls for greater uniformity in marketing and operations.

With the coming of autumn, the universities and schools across the land re-open their doors and adults bent on self-improvement flock to the registrations desks for evening courses in a multiplicity of subjects.

Others seek to enhance their knowledge and value to the community through active participation in organizations of their choice. For the Ontario Municipal Electric Association, fall is the time for reappraisal, for exchanging ideas and learning from the other fellow's experience and specialized training.

At meetings across the province, all nine districts of the association convene to deal with a host of administrative problems in the field of electrical distribution. When the leaves begin to fall, the commissioners who

comprise the association—which works clos ly with Ontario Hydro and the local utilitie in directing the province's publicly-owne Hydro enterprise—are in conference.

Always a highlight of the fall meeting the president's address this year called in more uniform policies in marketing and oper tions among the utilities distributing power in Ontario.

Speaking first at the District 3 meeting Dryden, OMEA President John McMechan r iterated his appeal at the subsequent co ferences. While stressing the importance in utility autonomy, the chief executive believe this was being carried too far in son instances. Pointing out that the average farily in Ontario makes several moves in



John McMechan - President of the OMEA

lifetime, and that this usually means that a customer leaves one utility for another, he declared:

"Every time these people apply for service from another utility it's almost like changing countries. The variations in methods of operation by individual utilities is almost unbelievable. For instance, many utilities have a four-block rate system with the third block higher than the third; some have a threeblock structure, others use a two-block system."

Other inconsistencies mentioned by Mr. Mc-Mechan were that some utilities favor electric heating while others don't; not all sell Cascade 40 water heaters; and others don't have financing plans for house wiring.

"Several run campaigns selling water heaters for \$66," he said, "while others run similar promotions and charge \$110. A few utilities have a flat rate for water heating, and others demand meters. Some have effective marketing and advertising programs and others can't be bothered."

Mr. McMechan said that a survey of Ontario Hydro's Central Region, covering 36 municipal systems, had revealed "a bewildering and alarming difference in methods and rates being charged for water heaters."

In urging a consolidated approach in operaion and a united front to competitors, the speaker said that the OMEA is asking each listrict to form a committee to study the problem and to arrive at standard guides for ill utilities.

"While charges for the first block of power o our customers must be variable, the second ind third blocks should be at cost," he delared. "Let us relegate all cost variations to he museum of electrical progress, and by .967 come up with one policy for the customrs and the same for the municipalities." \Box

NORTHEASTERN MEETING AT ESPANOLA

John Darby is named president of District 9.

More than 100 delegates attended the annual joint convention of the Northland Municipal Electric Association and the Northeastern Region, Association of Municipal Electrical Utilities at Espanola. Topics dealt with at the two-day meeting ranged from management problems to load-building, and from roadway lighting to advertising.

Reporting on behalf of the Electric Service League, Harry J. Foy, secretary-manager, said that more adequate wiring was resulting from the League's program of preparing wiring layouts for builders and contractors. In the past decade, he revealed, an average domestic installation in project housing was 36 to 42 outlets, while today the average was in the upper sixties. In custom housing it was considerably higher.

Calling for greater support of Red Seal promotion by municipalities, he said that members of the public must be assured that the houses which they rent or buy will permit the convenient use of the increasing number of electrical appliances in their possession.

In a statement delivered to the meeting on his behalf, H. R. D. Graham, manager of Ontario Hydro's Northeastern Region, announced that two additional sales representatives would shortly join the regional staff for sales work with smaller utilities. "The utilities will be expected to pay for the ser-

vices of these men, but it should increase kilowatt-hour consumption on a less expensive basis than if the utility were to hire a full-time salesman," he said.

W. Ross Strike, chairman of Ontario Hydro, reported that during the last five-and-a-half years Hydro had spent almost \$51 million in Northeastern Ontario on its four power developments on the Mattagami and Abitibi rivers. A total of \$41,640,000 had been spent on labor, and \$8,962,000 on locallypurchased materials.

A highlight of the meeting was the election of officers, which saw John Darby, of Espanola, named president. Ron Duncan, Coniston, Wes Edwards, Sudbury, and L. J. McKinnon, Cochrane, were elected vice-presidents. Tribute was paid at this time to H. Bruce McGubbin, North Bay, who has been NMEA secretary since the district was formed in 1960. Mr. McGubbin, who retired for health reasons. is succeeded by A. Wes Cooke, West Ferris.

Among resolutions adopted at the joint session, one urged that Ontario Hydro assign a portion of its advertising budget to regional offices for local advertising in cooperation with municipal commissions. Another suggested that Hydro make a \$500 bursary available each year to Laurentian University, Sudbury, similar to annual grants to other universities in the province.





Members of the District 9 executive elected at Espanola, left to right, front row, are: L. J. McKinnon, Cochrane, director; John Darby, Espanola, president; Ron Duncan, Coniston, and W. E. Edwards, Sudbury, vice-presidents. Standing are: A. Carl Maahs and Harold Prescott, Capreol; J. L. Boulley, Hearst; Doug Hugill, Sault Ste. Marie, and Cecil Smith, Chapleau — all directors.

This trio symbolizes "togetherness" of electrical utility group in Ontario. Chatting informally at District 9 meeting are, left to right: A. M. Bizzell, sales Ted Dash, Sudbury, past-president of the OMEA; and Hugh Harris, manager, Sault Ste. Marie PUC

DRYDEN HOSTS DISTRICT 3

President calls for greater use of electric heating in government projects.



Elected at the annual meeting in Dryden, these members of the new District 3 executive include, left to right: J. D. Phillips, Schreiber, 1st vice-president; H. F. Keffer, Sioux Lookout, president; Gordon Waghorn, Nipigon, director; James Currie, Port Arthur, past president; W. A. Ferguson, Atikokan and E. J. Hawthorne, Dryden, directors; and E. A. Vigars, Port Arthur, secretary-treasurer. A. J. Marshall, Fort William, 2nd vice-president, is absent.

Distance again proved no match for enthusiasm when municipal utility commissioners from widely-scattered communities throughout Northwestern Ontario converged on Dryden for the annual fall meeting of District 3 OMEA.

More than 100 utility officials attended the two-day conference at which sales promotion and load building were a recurring theme. Chairmen from all but one of the nine OMEA districts were among the several association representatives present from other parts of the province.

Calling for an education program to emphasize that Hydro in Ontario is owned by the

people of the province, outgoing president James Currie, of Port Arthur, declared that local and provincial governments have a responsibility to install electric heating in new public buildings.

"We have a product that is generated here in Northwestern Ontario and every effort should be made to make sure that the people are informed," he said. "This includes municipal councils which in some cases build city halls, schools and various other buildings using other means of heating than that which belongs to the people they represent."

Describing public education as one of the best ways of meeting competition, Mr. Currie

said it was the duty of every commission to make certain that the people's povshould be used in heating public building

A meeting highlight, the election of office saw Howard F. Keffer of Sioux Lookout nampresident. Jack D. Phillips of Schreiber Welected 1st vice-president, while A. Jack Marshall of Fort Frances became 2nd vipresident.

Among the resolutions passed at the meing, one called for Ontario Hydro to survithe Northwest with a view to extending spice to locations and areas presently with power. L. E. Danis, of Fort William, said the in some cases only small extensions to isting facilities were needed.

A resolution originating with the Distributed building committee which urged that the secretary of the OMEA tabulate reports from all district load building committees, was a endorsed. Such a report, it was pointed to should be distributed to all district load building chairmen, and would be invaluated for an exchange of ideas and over-all excation.

On the suggestion of Mr. Currie, the me ing decided that the District 3 execut and the load building committee would me each spring on the day prior to the ann OMEA convention. "Being so scattered in 1 north, we should take advantage of 1 annual trip to Toronto to formulate our 0 district business," Mr. Currie said.

Fort Frances was voted as the locat for next year's District 3 meeting.

MORE THAN 300 ATTEND GEORGIAN BAY MEETING

District 2 takes strong stand against Select Committee recommendation.

District 2 of the OMEA has a problem but it's one most associations would be delighted to face—how to accommodate the crowds who want to attend the annual meeting. More than 300 persons turned out this year at Elgin House, in Muskoka, and while a second resort was required to cope with the overflow, everyone got together for the business and social sessions.

Subjects ranging from advertising and marketing to a new handbook for commissioners were discussed at the two-day get-together but the recurrent theme had its origin at Queen's Park, in Toronto.

This was a recommendation contained in the third report of the legislature's Select Committee on the Municipal Act and Related Acts which would, in effect, abolish public utilities commissions throughout the province. Specifically, the Select Committee had recommended "that the functions of a public utilities commission be performed by the local municipal council or a committee thereof".

In a resolution approved unanimously at the Muskoka meeting, District 2 went on record as being "unalterably opposed" to the Select Committee's recommendation. The resolution asked that members of The Legislative Assembly be urged to "take positive and immediate action to ensure that nothing is done or even contemplated which would change or interfere in any way with the operation of all public utilities commissions in the province".

It was moved, further, that each meml municipality of District 2 would seek dorsement of the resolution from its lomunicipal council.

In explaining the background of the re lution, J. E. Wilson, Barrie, District 2 outgoi president, told delegates that the Distric stand had been presented to the Sele Committee earlier in the form of a brief a that individual utilities across the provinhad also made representations.

Several mayors and reeves attending t meeting as ex-officio members of their util commissions were asked to give delegat their views on councils assuming utility co mission duties.

Mayor J. J. Gignac, Penetanguishene, (

not believe most councils desired to take over Hydro and water administration because these were being handled efficiently under the present system. He thought revenue producing services should be kept separate from those financed by taxes since there would be a tendency to dip into utility revenue at the expense of good service.

It was pointed out by J. N. Darling, mayor of Alliston, that Hydro had been launched in his town as a committee of council and the change-over to a public utilities commission had been welcomed as a progressive step.

Mayor L. E. Cooke, Barrie, addressed members at some length in establishing his theme that electrical distribution was not a proper function of council. Among the points he stressed was the need for freedom to engage in a highly competitive market.

"Your responsibility today is not just to provide electric power at cost," he said, "but power at competitive rates. This depends on high volume which can only be achieved by capturing as much of the energy market as possible. Sales promotion is foreign to the functions of a municipal council."

In a report to the meeting Ontario Hydro Chairman W. Ross Strike deplored the image. which he said had taken root in some minds and had been expressed at Select Committee sittings, that utility commissioners were just "rubber stamps" for the managers. He said there was a real job of public relations to be done at the local utility level.

"Your record is clean," he said, "and some of the best people in the municipalities are serving on the utilities commissions. But this is not enough. You must sell the utility at every opportunity. Tell the people what you are doing and enlist the support of your staff in putting your story across.'

A second resolution approved at the meeting was submitted by Barrie PUC. It recommended that Ontario Hydro establish "an advertising fund" to be allocated on a "pro rata basis to the municipalities on a dollar for dollar basis against approved promotional advertising costs". Under the proposal, credit would be made on the annual power cost adjustment.

Elected president of District 2, succeeding Dr. Wilson, is J. J. Cross of Huntsville. D. A. Watt, Orangeville, becomes 1st vicepresident and Thomas Stevenson, Chesley, 2nd rice-president.

"Effective Advertising and Marketing" was he subject of a talk by C. W. Palmateer, nanager of Ontario Hydro's Advertising and Marketing Services. Participation from the loor was encouraged by two "Let Us Dis-Igree" sessions at which delegates were nvited to air their individual problems. \square



This is the new Georgian Bay M.E.A. executive. Left to right are: Alec McAuley, Elmvale; W. E. Theaker, Paisley; Col. A. A. Kennedy, Owen Sound directors; Thomas Stevenson, Chesley, 2nd vice-president; J. E. Wilson, Barrie, past president; J. J. Cross, Huntsville, president; H. J. Murphy, Barrie, secretarytreasurer. D. A. Watt, Orangeville, 1st vice-president; Norman Orser, Orillia; Herbert Carpenter, Midland and David Kennedy, Kincardine - all directors.

Gathering informally between sessions at the District 2 meeting, left to right, are: Mayor L. E. Cooke, Barrie; John McMechan, president, OMEA; J. J. Cross, Huntsville, president, District 2 and Ontario Hydro Chairman W. Ross Strike.



TWO BRIEFS WITH A **COMMON AIM**

Both the Ontario Municipal Electric Association and Ontario Hydro have presented briefs in rebuttal to the recommendation of the Select Committee on the Municipal Act that the functions of the public utilities commissions of the province be performed by local municipal councils.

Together the two briefs provide considerable insight into the unique public power system which has been so successful in bringing low cost electrical service to the people of Ontario. And both briefs concur on the principle reasons why the distribution of electric power is not a proper function of municipal council.

Among the points established in the briefs are the following:

- (1) Competition. In a competitive industry it is vital that utilities have the necessary flexibility, knowledge and desire to adjust to changing conditions.
- (2) Specialization. Because of the specialized nature of utility operations, policy-setting bodies must be well informed.
- (3) Devotion. Successful utility operation demands administrators who are keenly interested in Hydro affairs. Many commissioners, who would not be inclined to serve on coun-

- cil, have chosen this way to serve their communities.
- (4) Continuity. It is a fact that the average term of office of a municipal utility commissioner is much longer than that of a councillor, which results in "continuity of management" benefits.
- (5) Separation. It is desirable that funds derived from tax revenue and those realized from services (electric, water, etc.) should be separated to ensure that the taxpayer is not subsidized by the utility customer.
- (6) Burden of Work. Commissioners are more likely to have the time which it is necessary to devote to utility matters in order to make sound policy decisions.

NORTHWEST ON THE MOVE

Primary power demand in Northwestern Ontario is expected to increase from 482,000 kilowatts this year to 509,000 kilowatts in 1965. Reporting to the District 3 annual meeting in Dryden, I. Carl Ingimundson, manager of Ontario Hydro's Northwestern Region. said the forecast indicated that demand was returning to the previous high established in 1958 and 1959.

On the subject of load building, he said that the number of electrically-heated homes built in the region last year totalled 113 and represented $15\frac{1}{2}$ per cent of new building starts.

"In the commercial and industrial space heating field," he continued, "the progress being made is most encouraging. Motels, schools, churches, and commercial and industrial buildings of various kinds are adopting electric heat at a rapidly increasing rate. Every new motel built in this region last year has been equipped with electric heating."

underway or completed. Among current projects, AMEU representatives to the Electric Heating Association, along with other interested parties, are making further studies to arrive at a fair and proper solution for the inspection and certification of Triple Seal and Medallion Homes.

Mr. Hammond also revealed that the AMEU and the OMEA are co-operating in planning meetings with Ontario Hydro and Provincial Government authorities in an attempt to have responsibilities and duties under the Emergency Measures Organization clearly defined.

BRIGHT FUTURE FOR NORTHEAST

An encouraging run-down of future prospects for Northeastern Ontario was given delegates to District 9 OMEA meeting at Espanola, in the report of H. R. D. Graham, Northeastern Regional Manager.

Mr. Graham, who was absent through illness, said in his report that although gold and uranium mines were closing, others would surely open to take their places. Increased world demand for nickel had offset the cutback in production at Sudbury, according to the report, and the high price of silver had resulted in continued interest in the Cobalt camp, with several new mines coming into production.

Peak power demand in Northeastern Ontario last year was three per cent higher than in 1962, and various projects were underway to further improve service.

"Our land is loaded with ores and raw materials," the report concluded, "and with resources such as we have, the future looks bright indeed." $\hfill\Box$

AMEU REPORTS

President J. W. Hammond takes pride in its achievements.

While other associations may dwarf it in total membership, Ontario's Association of Municipal Electrical Utilities is nevertheless the largest association in the world devoting studies solely to the technical advancement and economics of electrical distribution. . . .

This sobering thought was left with Hydro commissioners at OMEA meetings across the province by AMEU president Jack W. Hammond, of Hamilton. He said that present membership totalled 300 and represented as many municipalities.

Outlining the activities of the association's various committees, Mr. Hammond said there was cause for pride in the number of projects

THIRST FOR KNOWLEDGE

Speaking at the Georgian Bay Municipal Electric Association and other District annual meetings across the province, E. C. Dash, immediate past president of the OMEA, asked utility commissioners to accept the challenge of leadership "in an operation that has changed our way of life as nothing else has ever done. Work at it," he continued, "and you will become a group whose knowledge will stand out as being superior to any other body in the municipal structure."

In outlining the contents of a commissioners' handbook, Mr. Dash said it was being prepared at the request of a large majority of association members who had asked the OMEA and Ontario Hydro to provide an educational program for commissioners. He thought this indicated the dedication of commissioners and the specialized nature of their work.

The speaker emphasized that the request for an educational program had been made long before the Select Committee on the Municipal Act had recommended that committees of council take over the duties performed by municipal utilities commissioners.

He said enthusiasm would play a very important part in the education program. He had found in his travels across the province that commissioners were proud of their work and proud of their municipalities.

ACCOUNTING GROUP MEETS IN HAMILTON

"East is East and West is West and never the twain shall meet," affirmed Rudyard Kipling but they did, when several Eastern Accounting delegates crossed highway 11 to attend the 32nd Western Ontario Division Accounting and Office Administration Committee conference, held in Hamilton recently. The Highway is the dividing line for these to A.M.E.U., groups.

Over 250 delegates who attended the the day meeting heard D. H. Bond, group pension consultant, Confederation Life Associatic outline the benefits and other details of the Municipal Hydro Electric Pension and I surance Plan. Mr. Bond also discussed the highlights of both the Ontario Pension Benefice Act and the Canada Pension Plan.

Under the provincial act, the speaker sai all private plans must be registered wi the Ontario Pension Commission by Janua 1, 1965. "The purpose of the Ontario Pension Benefits Act is to protect members of private pension plans by ensuring that the plans a solvent; by minimizing the loss of pension plans when employees change jobs; and providing employees with adequate information about the plan," said Mr. Bond.

"Broadly speaking, the locking-in and vering features will apply to pension benefipurchased by the employer, and the employer's required contribution made after Janua 1, 1965, if the employee is age 45 or ov and has completed 10 years of service at termination," he explained. When the pershas reached age 65, retirement age, he were the benefits which have been puchased by both the employee and the eleptone place of the property of the property of the place of the place

At no time before retirement will a terminated employee's voluntary contribution (those above basic requirements of the plate be locked into the plan nor will this locking in feature apply to contributions made prited January 1, 1965.

"However, the act provides one exception said Mr. Bond. "If the private plan so stip lates, the terminated employee may choo to receive up to 25 per cent of his to vested annuity in cash. On the average the means that an employee age 45 or ow with at least 10 years service may withdrabout half of his own required contributio made after January 1, 1965." Employe terminating up to the age 45 and any eployee with less than 10 years service who the affected by the Ontario act.

The Canada Pension Plan, which is separate plan sponsored by the Federal Government, has a target date of January 1966, set for the collection of the first contributions. Mr. Bond outlined this compulsor plan which will require wage and sale workers and self employed people to contribute. Contributions of 1.8 per cent will paid by both the employer and employee earnings above the \$600 exemption and to the \$5,000 maximum.

Contributions in respect to earnings on \$5,000 will be based only on the fi \$5,000 taking into account the \$600 exen



Smooth functioning conference was directed by: back row, left to right: J. E. Coubrough, Hamilton, conference chairman; John Horsley, Burlington, and Robert Ion, Brantford, program chairmen; E. M. Frantz, Niagara Region, secretary. Front row: C. H. Kew, London, vice-chairman; Ron Taylor, St. Catharines, general chairman; Norma Crane, Niagara Falls, treasurer.

ion. When the Canada Pension plan is finalzed, private pension plans may be amended o offset compulsory increase in contributions. The role of the Ontario Hydro municipal countants was examined by a panel modrated by Frank Gomer, of the Niagara Reion.

G. E. Conn, municipal accounting co-ordinate, explained that the regulatory role of the countant was based on sections of The ower Commission Act and described his offices a clearing house for queries from both functional accountants and outside groups. The inspection role of the Hydro municipal accountant was clarified by J. Henson, Niagara agion, while R. H. Gray, Central Region, exained that the municipal accountant could so help the utility bring its system's produre up to date.

Third party claims and claims procedure ere discussed by C. O. Biggs, Ontario Hydro surance manager, who warned that utilities would protect themselves from third party aims arising from personal injury and damige resulting from utility operations.

Citing several cases of third party claims, said that awards and judgments in these ses can be extreme. "It is desirable to rry insurance for this type of liability, less you have unlimited assets. The public now more claims conscious and the trend toward increasing awards," he said. Many ilities had increased their liability coverage m \$200,000 to \$500,000, he revealed.

A tour of the Steel Company of Canada ded the convention. $\hfill\Box$





along hydro lines

Yachts Picket Pumped-Storage Site

A flotilla of 50 yachts picketed the huge pumped-storage site on Storm King Mountain on the Hudson River where construction is proposed by Consolidated Edison. The New Yorkers insist that the \$160 million project would entail an enormous gash up the side of the mountain that would set a precedent for the defilement of the valley. The proposed project, capable of generating two million kilowatts, would be the largest pumped-storage hydro-electric installation in the world.

First Fair Exhibitor

The Telephone Association of Canada has become the first private exhibitor to take possession of an Expo '67 site. Plans for the Association's display include a pavilion and an exhibit on a 35,000-square-foot lot. Cost of the exhibit is estimated at \$2,000,000.

Electric Heating Milestone

The 10,000th family in Ontario to choose an all-electric home was officially congratulated recently by W. Ross Strike, chairman of Ontario Hydro. Mr. and Mrs. William N. Sloan and their four sons accepted an illuminated scroll from the Hydro chairman during a ceremony held at their Medallion all-electric home in Scarborough.

Mr. Strike referred to the rapid growth of electric home heating since its introduction to Ontario five



Congratulations from the Electric Heating Association of Ontario are extended by Ray Pfaff (right), president, to Mr. and Mrs. W. N. Sloan, and their four sons, who were the 10,000th family in Ontario to choose an all-electric home. EHA presented an electric range to the Sloan family.

years ago, and forecast that by 1980 a quarter of a million homes in the province would be electrically heated.

Reeve A. M. Campbell, Scarborough PUC commissioner, officially welcomed the Sloan family to Scarborough and presented them with gold Medallion keys to their home.

W. R. Pfaff, president of the Electric Heating Association of Ontario, presented the family with a new

electric range.

On behalf of the Electric Service League of Ontario, M. Walker Broley, chairman of Scarborough PUC, presented a Medallion All-Electric certificate to the Sloans. Medallion all-electric homes are certified by the League when they meet the high standards of power, appliance, and light conditioning recommended by the electrical industry.

A Good Idea Catches On



Many thousands were again attracted to Toronto Hydro's "Fashions in Electric Living" at the Canadian National Exhibition this year and the presentation, which features fashionably attired models in six scenes with different appliances, is catching on.

J. F. Thomlinson, director of consumer service for Toronto Hydro, is proud that the show was conceived and produced by members of the utility staff. He reports that department stores have picked up the idea and that the Robert Simpson Company is considering using this approach at the 1967 World's Fair in Montreal.

The colorful carousels shown are located at the entrance to the appliance-fashion presentation. Other crowd pleasers at the Toronto Hydro exhibit included a ceramic demonstration featuring an electric kiln, and a miniature electric racing car system.

Electrical Day at CNE

"As electrical manufacturers, our prosperity and future are based essentially on electric power generation and utilization in Canada," L. G. Lumbers, Canadian Electrical Manufacturers' Association president, told guests at the Electrical Day luncheon, Canadian National Exhibition. He said the record of our electrical utilities has been "truly amazing" and he pointed out that as a per capita consumer of electrical energy, Canada was

second only to Norway. Canadian per capita consurtion was 6,290 kilowatt-hours in 1962, as compa with 10,346 kilowatt-hours in Norway.

"As a matter of interest," the speaker said, "Can is closely followed in per capita consumption Sweden with 5,268 kilowatt-hours, United States v 5,075 and the United Kingdom with 2,840. The waterage in 1962 stood at 835 kilowatt-hours capita," he said.

Hydro Chief in Pow Wow

Blood curdling chants backed by a steady drum tenticed more than 6,000 persons from both sides of border to the annual Chippewa Indian Pow Wow trecently at Sarnia.

A highlight of the colorful, three-day ceremon performed by Chippewa, Kiowa, Pottawattomi, I hawk and Ojibway Indians, was the presentation of Coup Feather to John T. Barnes, chairman of Sarnia Hydro-Electric Commission.

Said to be the highest honor any Indian Tribe bestow upon a member, a Coup Feather has to earned and once conferred can never be taken awa

Long interested in Indian affairs, Mr. Barnes made an honorary chief of the Chippewas of the Sai Indian Band in 1961 for his efforts to perpetuate traditions and lore of the local tribes.

MUNICIPAL BRIEFS

John McIssaac, a former chairman of the Orillia Wa Light and Power Commission, died recently. McIssaac was mayor of Orillia in 1954 and 1955 he was elected to the commission from 1958 to 19

All services including electrical, telephone and or munity television, are underground at Bridlewood S division, in Scarborough. This development of at 600 homes is the site of Ontario's 10,000th electric heated home. Ceremonies marking the occasion wheld recently.

A strike by the employees of the Perth PUC entered its third month at the time of writing.

Fifty people honored G. W. "Gerry" McCallum a testimonial dinner recently. Mr. McCallum retired summer after serving as superintendent of Georgete Hydro for 23 years. He had previously worked 10 years with the Fenelon Falls Board of Water, L and Power.

Percy Kennedy and Harley Forden, who each set 44 years with the electrical department of the Wo stock PUC, have retired.

Roy Dennis, Brampton Hydro commissioner, or recently after a lengthy illness. Mr. Dennis joined Hydro commission in 1957 and became chairman 1958. He is succeeded by Wilbert West, town solic on the commission.

Major Frank Hammond, Deep River Hydro chairn resigned recently because of a transfer to the Whites Nuclear Establishment in Manitoba. Major Hamm was mayor of Deep River from 1960 to 1962 and a resident of the town since 1945.

John Middel has been appointed manager of Harrow Hydro, replacing Don Hines who becomes manager of Dresden PUC. Mr. Middel was with the Essex PUC for seven years before coming to Harrow.

Lindsay Hydro recalibrated and maintained 1,287 meters last year, inluding those of the Fenelon Falls, Beaverton, Cannington and Bancroft Hydro systems.

Peterborough Utilities Commission has decided to absorb the 10 cents collection charge imposed on customers when they pay their hydro bill at the bank. The move will cost the utility an estimated \$120 a month and is being introduced on a trial basis.

John McRae has retired from the Fort William Hydro after 43 years service with the line department.

All-electric heating for home and industry was featured by London PUC at the recent Western Fair. Manufacturers, distributors and electric heating contractors also participated and experts were on hand to answer questions.

All Brantford's overhead wires in the downtown area are expected to be underground by 1967. William Secord, assistant manager of Brantford PUC, estimates that only a third remains to be done in the central downtown area while about half has already been completed in the greater downtown district. The utility has been taking advantage of road and sidewalk reconstruction to proceed with the work at minimum cost.

Employees of Welland Hydro recently honored T. W. Houtby with a presentation in recognition of his 38 years service. Treasurer and comptroller of the commission, Mr. Houtby will soon retire.

Louis Peterson, a past chairman and veteran member of Almonte PUC, has tendered his resignation to the commission over a dispute regarding the purchase of used vehicles.

Illuminated street signs have been installed for the first time in a subdivision in St. Catharines. Brampton, Milton and Toronto Township are other municipalities using lighted street markers.

Collingwood PUC will supply and lay cable for underground distribution but it's up to the home-owner to provide the trench, cable bedding, backfilling, and supply the conduit pipe at the house.

Hespeler Hydro plans to erect a new office building and garage at the present site of the service center. The possibility of establishing a public utilities commission to combine the Hydro and Water Works Departments is also being considered.

Windsor Utilities Commission is changing over to a zone system for its meter servicing. Meters had previously been picked up at any location as their service date came due. Now the city has been divided into eight sections, each of which will be serviced in total. Pick up and delivery costs are expected to be reduced by the change.

Finer Food—Electrically

Chefs, cooks, dieticians, educators, owners and managers of tourist resorts, motels, hotels and restaurants in Northern Ontario converged on West Ferris near North Bay recently to attend a three day "Finer Food Service—Electrically" conference and exhibition.

The event, sponsored by Ontario Hydro and several tourist and restaurant organizations, included discussions on group feeding on a budget, principles and techniques of menu planning, staff and customer relations and the future of food services as a career. Guest chefs also made presentations on various cooking topics.

The program, held in a large electrically heated tent, featured equipment and food displays.

Planning Metermen's Workshop



Discussing preparations for the third annual Metermen's Workshop are Don Smith of Kingston, right, and G. E. Gathercole, first vice-chairman of Ontario Hydro. Mr. Gathercole will address the estimated 175 delegates at the Skyline Hotel in Toronto, November 19, first of the workshop's two days. Mr. Smith, in charge of the workshop, is chairman of the Metering and Service Entrance Equipment committee of the province-wide Association of Municipal Electrical Utilities. Last year, 77 utilities were represented, compared with 67 in 1962.

Meter Engineer Retires

L. V. Hunt, engineer in charge of Ontario Hydro's Central Meter Shop at A. W. Manby Service Center, retired recently. Joining the Commission in 1949, Mr. Hunt was in charge of the watt-hour meter conversion program during Frequency Standardization and served as a consultant to the AMEU during this period. During his Hydro career, he had presented many papers at AMEU conventions and at the last Meterman's Workshop, served as host to delegates touring the Manby metershops.

Nuclear Power Catching On

The Third United Nations International Conference on the Peaceful Uses of Atomic Energy, held in Geneva recently, heard Dr. Glenn Seaborg, chairman of the United States Atomic Energy Commission, predict that by the end of this century more than half of the world's electric power would be generated by nuclear plants. Scientists from nearly 70 countries attended the meeting.

Mountain Chute Gets Underway



Work has begun at the Mountain Chute hydro-electric project on the Madawaska River, pictured above, which is located about 22 miles southwest of Renfrew. A three-mile access road is being pushed through to the site from a point south of Calabogie on Highway 508.

Sites have been cleared for workshop buildings and clearing has started for the main dam and for the crushing and mixing plants. The present work force totals nearly 100 men and it is expected to reach 150 by mid-winter.

The contour of the station headpond is now being blazed in preparation for clearing trees from approximately 5,500 acres. Initial concrete work will begin next spring and the 160,000-kilowatt station is scheduled for service in December, 1967.

Dusk-to-Dawn Lighting

The "Dusk-to-Dawn" rental lighting program for rural customers of Ontario Hydro has been so successful that it has been necessary to prepare new estimates for 1964. Hydro has already purchased 2,000 of the outside lighting units and with the added impetus of a fall national promotion, 3,000 additional units are expected to be installed by December 31, 1964. This will necessitate an additional expenditure of approximately \$342,000 during 1964.

Fly Ash Plant

After a delay caused by process difficulties, a large fly-ash conversion plant adjacent to Detroit Edison Company's 850,000 kilowatt River Rouge generating station is on stream.

The Waylite Company plant converts fly-ash into three grades of lightweight aggregate for concrete by balling it and then sintering it in a furnace.

A concrete-tile producer, the first regular Waylight customer, has signed up for 10 per cent of the plant's 1,000 ton daily capacity.

Compared to 3,000 pounds a yard for the usual

pebble-and-sand mixture, the advantage of fly aggregate is that it weighs only 1,800 pounds a y To the utility, the gain is avoiding the trouble and pense of disposing of fly-ash.

All-Electric University

The first all-electric university in North America be built on a 1,400-acre site just north of Peterboro Ontario.

When completed, Trent University will have s 8,000 students. Approximately 1,200 students are

pected to be on campus by 1970.

The decision by Trent University officials to and build an all-electric campus was based on rec mendations by R. E. Crossey and Associates Lim consulting engineers in Toronto. The firm was at to determine the most suitable and economic was purchasing and distributing the energy for healighting, and air conditioning throughout the camp

Several reasons for recommending an all-ele

campus are given in their report.

Most important, electricity proved to be the 1 economic source of energy for all three phases of struction.

Using electricity as the sole source of energy heating, cooling, and lighting will simplify all elect and mechanical functions for the university. An electric campus will also reduce maintenance staff the administration work load, including purcha storage, accounting, and personnel administration.

The use of electricity will eliminate the need f large central boiler plant on the campus, as we smokestacks, which may contaminate the atmosp

and soil the surrounding buildings.

Construction will be undertaken in three stages t completed successively in 1968, 1973 and 1980. completed university campus will contain a total o college buildings, science buildings, a library, thouse, theatre, museum, art gallery, infirmary, adm tration building, and superintendent's building.

The university will have a maximum demand loa

some 12,000 kilowatts.

August Energy Production

Primary energy provided by Ontario Hydro August, totalled 3.13 billion kilowatt-hours, a increase of 5.3 per cent over the same month year ago.

For the first 8 months of 1964, the total 26.56 billion kilowatt-hours, up 8.0 per cent ov

the same period last year.

Adjusted for seasonal influences, prima energy demand in August was 3.32 billion kilwatt-hours, 3.0 per cent less than the previous month.

The seasonally adjusted total for August represents 39.79 billion kilowatt-hours at annual rate. This is 286.0 per cent of the energy demand 1949.

OFF THE WIRES

- Fire hazards are no laughing matter but one is reported from Gananoque which rather tickles our jaded fancy. According to a newspaper account, a consulting engineer reported that in some places the roof of a 164-year-old building in that town was supported only by the electrical wiring. He was referring to the fire hall.
- Charles G. W. MacIntosh, public relations officer with Ontario Hydro's Central Region, is a man who does not give up easily. He has managed to parlay 12 years of study, 30,000 miles of travel and attendance at three universities into an associate in applied science degree.

Charles, it seems, had enrolled at the University of Niagara Falls, New York in 1952 when he was working with the Niagara Region. He had previously attended the Ontario Agricultural College at Guelph. Assigned to the St. Lawrence Power Project, he continued his part time studies at Queen's. Four years ago he joined Central Region and since that time he has driven the 180-mile round trip to the University of Niagara Falls to attend evening classes once a week.

Persistent chap, Charlie. He may have missed out on the pigskin end of college hoopla but he never lost sight of his sheepskin.



■ Judging by the size of our own personal bank account, we can lay no claim to the Midas touch but it does seem strange that the KVP company should announce plans for a \$17 million expansion of its Espanola facilities so soon after our article in the September issue recounting the town's progress! The project will double production of bleached kraft pulp at the Espanola mill. About 300 men will be added to the wood harvesting and mill payrolls when the enlarged plant is in full operation, towards the end of 1966.

In the illustration, new equipment is

represented by the dark models, existing plant in the light.

As we suggested in the article, Espanola is building on a solid foundation of paper.

■ The Gleaner of Frederiction, New Brunswick, make a point in reply to recent protests by the U.S. coal industry with regard to extra-high-voltage longrange power transmission which it sees reducing its market by making possible the importation of Hamilton Falls power from Canada.

"In point of fact", the paper observes, "the power transmission discoveries provide the solution to the major problem of the coal industry — the difficulty and expense of transporting its heavy, bulky, awkward, dirty product. It is becoming increasingly possible to simply burn it at the mine mouth and transmit the electricity it produces to its objective by means of wires."

- A tidbit in Industrial Canada notes that when an electric motor was used to drive a coffee grinder in 1882, Toronto housewives tried to keep electricity out of the home on the grounds that female domestics working only 14 or 15 hours a day would face "temptations". Presumably their fears were groundless if the work schedule of the modern domestic is an indication. As some wit has observed, in this electric era all a woman has to do to run her home is to keep on plugging.
- A novel twist on the man bites dog theme comes to us from the Hamilton district where two neighboring communities are attempting to take a bite out of each other. On the theory, perhaps, that the best defence is a good offence, East Flamboro Township launched an attempt to annex the village of Waterdown. The action followed Waterdown's earlier decision to annex part of the township. It would be very interesting, indeed, if both bites were successful.
- Dogs are also in the news at Niagara Falls but this is a case where their bark is worse than their bite. When city council recently passed a law decreeing that dogs, previously allowed to run free from November to February, must now be tied up at all times, it hoped that this was an end to the matter and turned

to other pressing business. But the dogs were not happy.

They put up such a clamor, apparently, that many bleery-eyed citizens were disposed to complain.

Turning again to the law, council was dismayed to find itself powerless to pass a law forbidding dogs to bark. It was finally moved that the matter be sent back to committee with a view to asking the provincial government for authority to enact anti-dog-barking legislation. And that's the way things stand.

All very intriguing, particularly if permission to enact such legislation is forthcoming. As Bruce West of the Globe and Mail points out, "A dog's right to bark is a long established privilege, like free speech. In a dog's world, freedom to bark is something sacred, like freedom to chase cats."

Passing laws is one thing, but enforcing them is another. And there could be complications. If barking were outlawed, would howling, growling and whining still be countenanced? Would there be exceptions if absolute silence were imposed, or would man's best friend be required to greet a burglar with a friendly grin and watch with mute disinterest as his master's house was consumed by fire?

Mudos are due to the switchboard girls of the Northeastern Region whose dulcet tones and pleasant manners have drawn favorable mention in the local press. In her "Chitchat" column, Lorraine McGowan of the North Bay Nugget, had this to say:

"Isn't it amazing what the tone of one's voice can do? It can register anger, boredom, irritation — and make its listeners feel one, or all of those emotions.

"Or it can register happiness, interest, pleasure — and make the day a happier one for the person on the other end of the line.

"It's those last three qualities that make it such a pleasure to call the Ontario Hydro. Our courtesy bouquet is sent to the switchboard operators out there today . . . their approach to telephone service just can't be topped."

Take heed — anyone who doubts the public relations value of the course in telephone techniques which Ontario Hydro provides for its employees and those of the municipal utilities.

CHIEF LIBRARIAN
PERIODICALS DEPT
UNIVERSITY OF TORONTO
TORONTO S ONT

Did you hear they're remodelling our attic and installing

I'd like to go on record as saying that's great... great... great... great...



Remodelling your attic? Adding a new room? You can make any room warm and livable with electric heating. It's simple and inexpensive to install and operate. You can add electric heating without disturbing your present heating system. And it will cost you less to install than it would to extend your present system. Flameless electric heating is the quietest, safest, cleanest heating system ever devised.

Electric Heating Information Centre. The specialist at your Hydro's Electric Heating Information Centre can give you complete information on the type of unit best suited to your room, installed cost, operating costs and help in arranging installation. Call now.

your hydro

This advertisement is one of a series being made available by Ontario Hydro to the municipal electrical utilities, without charge, for use in conjunction with the supplementary electric heating campaign being conducted from October 16, 1964 to March 2, 1965.





While these ladies were off seeing some of the many interesting features of the Listowel district, their husbands were in conference. Subjects of vital interest to the welfare of Hydro in Ontario were discussed at District 6 and at other OMEA meetings across the province. See page 18 for some of the highlights.



This may look like a helmet worn by some great warrior of the pre-Christian era but the noble headpiece is really just a hard hat — with some embellishments. Stolen from a construction worker on the Dez River project, the hat was engraved and offered for sale in a shop in Ahwaz. More details on page 14.

NOVEMBER, 1964

ONTARIO HYDRO NEV

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THE COVER

One of the oldest in the province, the Markham is reflected in the polished horn of this East bandsman. Originally established to promote proved agricultural methods, the fall fair now (something for everyone. Its carnival atmosphas been captured on pages six to eight by writer Lois Lane and photographer Ron Brown

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Look for a man who combines the knowledge of a lawyer, diplomat, salesman, psychologist, farmer, and executive, and you'll probably come closest to an Ontario Hydro property man. He deals with thousands of property owners whose co-operation and good-will are essential to the continuing success of the Hydro enterprise. The following story deals with Hydro's men of property and how they do their job.

Men of Property

Hydro's top property men are director Harry Hustler, left, and deputy director Arnold Huddleston. Both have been with the Commission some 35 years.



Y PETER MAITLAND

roperty is the pivot of civilization. -Leon Samson, The New Humanism

he chairman gavels for order.

"It's getting late, ladies and gentleen, and you've all had ample oppornity to place your views before the eeting. Now perhaps the gentleman om Ontario Hydro will reply to your mments."

Glancing pointedly at the clock on e council chamber wall, the chairman ods in the direction of Hydro's prorty representative.

His audience: a group of home-

His job: to explain why Hydro picktheir suburban street as the site of new distribution station.

Although subjects, locations, and diences change — the group might

be a municipal council, planning board, or ratepayers' association — this scene illustrates one of the continuing jobs facing members of Ontario Hydro's Property Division as they go about the business of meeting the growing property requirements of an electrical utility which must almost double its system every decade.

While deeds, titles, agreements, easements, and the like are the workday tools of the Hydro property man, perhaps his most important assets are tact, diplomacy, and plain good judgment in dealing with people.

"A French philosopher whose name eludes me," recalls Harry Hustler, Hydro's director of property, "once said that there are two great problems in life — people and things. Of the two, the problem of people is by far the greater.

"That certainly sums up the property business as far as I'm concerned."

Harry Hustler heads a team of specialists whose responsibilities are as wide and varied as the operations of Hydro itself. Whether the assignment involves a square mile of empty muskeg, 440 miles of EHV transmission right-of-way, or relocating two-thirds of a town, the property men handle the job.

If dealing with people is the greatest part of the Division's work, statistics best show its scope. Ontario's steadily increasing demands for electric power means that Hydro's system must double in capacity every 10 to 12

Seventy-one power stations, 725 transformer and distribution stations, nearly 70,000 miles of transmission lines, plus the varied administrative and service facilities required for the complex operation of a province-wide utility add up to a large amount of land. (continued)



The Commission is one of the irgest property holders in the provice, owning approximately 96,000 cres of land outright, exclusive of asements and rental agreements.

Hydro's property transactions averge about 6,000 a year ranging from a agreement for a pole anchor on rivate property to a complicated real state deal involving thousands of ollars. In periods of peak rural electification, settlements ranged up to 5,000 annually.

Front line man is the property agent, ho completes hundreds of individual ansactions each year. In addition to property officer in each Hydro reonal office, 26 agents work out of ad office in Toronto. Working for a litty whose service area covers a larter of a million square miles, eans periods of semi-nomadic life for e property agent. And besides a suitse, you can sometimes find in the lank of his car snow shoes or high aders for tramping over the country-le, depending on the season.

Engage a property man in convertion, and you soon discover he is ceptionally well-informed about a rprisingly wide variety of subjects. Intrary to stories about the joys of ravelling man's life, a regular routine hotel living usually breeds a catholic te in reading. Perhaps more imrant, is an osmosis-like process set by the broad cross-section of people th whom the property man deals.

In a typical day, he might deal with bee keeper or a lawyer in the morn-, a municipal official or a chicken mer after lunch

mer after lunch.

As one agent put it:

"You should know something about business involved on the property are interested in. If you don't, you to learn in order to make a sonable evaluation."

It also helps in another important pect — establishing a personal relaliship.

'If you compliment a farmer on his n when you're looking at a field oats," remarks the same agent, at doesn't do much in establishing confidence in you."

At ease at a farm kitchen table or highly-polished furniture of an

Hydro's biggest single property job was at the St. Lawrence power project. Many historic buildings such as this church were preserved and moved into Upper Canada Village.

executive board room, Harry Hustler and deputy property director Arnold Huddleston exemplify the career of the Hydro property man. Starting with the paper routine of titles, deeds, and documents, the fledgling agent then accompanies property men on field assignments. First assignment on his own is usually negotiating easements for a rural distribution line, working up to transmission line right-of-way and finally graduating to the purchase of property.

Mr. Hustler has personally directed two of Ontario Hydro's largest and most complex projects involving property and people — the St. Lawrence and Carillon relocation programs — and his assistance has been sought in an advisory capacity in British Columbia, Manitoba, New Brunswick, and

outside Canada.

Last spring he went to New Brunswick at the request of the provincial power commission in connection with a power development on the St. John River. The Mactaquac project in many respects parallels on a smaller scale Hydro's biggest single property job — The St. Lawrence rehabilitation and relocation program.

In 1956, Mr. Hustler moved to Cornwall as property director of the St. Lawrence power project. Ahead of him lay a rehabilitation and relocation program on a scale never before

attempted in Canada.

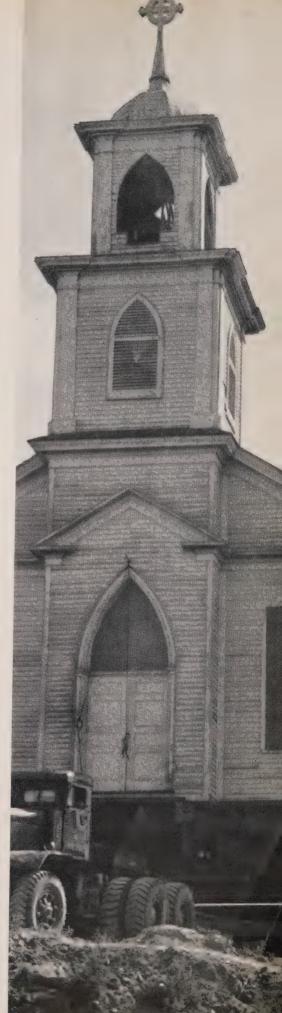
Approximately 20,000 acres of land on the Canadian side of the river were affected by flooding from the power development. Seven communities and part of an eighth went under water. Approximately 6,500 people were affected.

Three new communities were created to house them, and a new subdivision and business centre was built at Morrisburg, which was only partly affected.

Shopping centres, schools, churches, roads, sidewalks, waterworks, sewage treatment plants and recreation areas were built; homes were moved, multiple dwelling units went up, and even cemeteries were relocated on higher ground as the topography of the historic St. Lawrence Valley was rearranged.

A few months after the St. Lawrence

rs of negotiation with owners part of the Hydro property 's job. Supervising agent Frank ker, far left, makes a t over the kitchen table.



project was officially opened in 1959, Hydro-Quebec announced plans to proceed with the Carillon hydroelectric development on the Ottawa River, and Hydro's Property Division was again involved in a major program of property acquisition and relocation.

Under an inter-provincial agreement, Ontario Hydro was responsible for acquiring property on the Ontario side of the river affected by flooding. A total of about 2,600 acres were involved, including some 245 commercial and residential properties in the town of Hawkesbury as well as farms in adjacent rural areas. In addition to property covered by the agreement, Hydro is presently engaged in acquiring approximately 3,100 acres of shoreline upstream between Hawkesbury and Ottawa.

Most difficult part of the job was in Hawkesbury itself, where many municipal services were replaced, including construction of a new trunk sewer down the middle of the Main Street business section.

Hydro's property representatives worked closely with town officials, businessmen and merchants, householders living in affected residential areas to keep the disturbance of the community's daily life to a minimum.

Mr. Hustler, "the job was similar in many respects to the St. Lawrence. The lessons we learned there were invaluable in helping us to avoid pitfalls at Hawkesbury."

One major difference was language, since Hawkesbury was primarily a French-speaking community.

"You can imagine the difficulties our agents ran into occasionally during direct negotiations which had to be carried on through a third party in a different language. Despite this, we encountered surprisingly few problems that were not amicably resolved.

"For the most part, we affected the oldest part of the town and the net result was an urban renewal program which I think did a great deal for Hawkesbury."

At the peak of activity, Mr. Hustler made the trip between Toronto and the Ottawa River town almost weekly, meeting regularly with town officials.

During the period when the St. Lawrence and Hawkesbury required his full attention, deputy director Huddleston assumed added responsibility in managing Hydro's other expanding property needs.

Like all property men, Arnold Huddleston finds the people he meets and the problems encountered are the most interesting aspect of the business.

of human nature, and he also ne a thick skin at times," adds Mr. H dleston, who has several personal collections of hard bargaining farm who expressed disagreement with Hydro offer in action rather t words.

Although some property owr conjure up dreams of a comforta and immediate retirement when Hydro property man knocks on tl door, Hydro offers no more than fair price the same as any other "r dent buyer."

Differences of opinion as to value always exist, of course, that's where tact and good judgm come in.

"As with any prospective purcha we determine values in various way notes Mr. Huddleston. "We comp with sales of similar property; we timate a building's cost less depre tion; we consider rental value.

"A basic rule of acquiring land public purposes is that the money be paid must represent the value the owner, not the value to the tak he says. "The owner is entitled to paid the full price for his property every element of value which it p sesses must be taken into consid

"Unfortunately, we cannot att any tangible value to sentimental]



Harry Hustler notes that "most seople do not rebel against selling property for public purposes."

"For the conscientious property nan," Mr. Hustler says, "the toughest ransaction is when an owner sincerely elieves our offer to purchase is too ow. When both parties are earnestly tempting to reach a fair agreement, nonest differences of opinion like this are very difficult to resolve."

Easement payments for power lines rossing farm lands are a different natter. A uniform schedule is maintaind on a province-wide basis, developed a co-operation with the Ontario rederation of Agriculture. This guarantees farmers equal treatment for omparable easement rights.

With the development of the provnces's major hydro-electric resources, orge-scale property and relocation rograms like the St. Lawrence and 'arillon are unlikely in the future.

But the outlook is no less challengig for the property men.

"With the growing trend to conested urban living and more intensive se of land," says Harry Hustler, "we re moving into an era of more sohisticated problems. Zoning by-laws, tore restrictive property legislation, ineasing awareness of community lanning and aesthetic values both at the neighborhood and the community level, all contribute.

"For organizations such as Ontario Hydro which have a continuing need for property on which to locate facilities to meet the needs of their customers, these factors pose difficult — but not insoluble — problems.

"We have a responsibility to our customers to provide electricity at the lowest possible cost. The operative word here is 'possible.' The public's more sophisticated attitude towards land and its uses means that more and more we must integrate our requirements with the diverse plans of the community as a whole. Which takes us back to the needs of the people who live in the towns, cities and, rural areas we serve."

In a typical day, property agent Norman Lamble, opposite page, may deal with a farmer, municipal official, lawyer and beekeeper.

Hydro's men of property include experts in many fields.
Department heads, below, from left to right are: Oz Porter, planning and sales officer, H. A. Goodhead, office manager, J. A. S. Burry, assessment and taxation officer, and Charles Tidy, special negotiator.



REACHING AGREEMENTS

If you've ever bought a home or other piece of real estate, multiply the details and paper work by a million and you will get some idea of the work involved in looking after Hydro's property needs.

Averaging 6,000 a year, each property transaction must be dealt with individually and can involve days and months of patient negotiation.

Purchases and other rights are normally negotiated directly between the owner and a Hydro property agent.

If all reasonable attempts to arrive at a mutually satisfactory price fail, Hydro must then exercise its authority to take the property by expropriation.

In legal terms, expropriate means "the taking of land without the consent of the owner by an expropriating authority in the exercise of its statutory powers."

Expropriation for the purposes of a public utility was practised in the Roman Empire and in ancient Greece. The legislation which created Ontario Hydro in 1906 gave the infant utility broad powers in property matters. This authority was used with discretion and every effort was made to reach an agreement with owners before invoking legal authority.

Many of the expropriation practices written into the new Expropriation Procedures Act which became effective this year were pioneered by Hydro on a voluntary basis.

One example is the offering of an advance payment to assist an expropriated owner in relocating himself. Now a legal requirement under the new Ontario law, this procedure had been followed by Hydro for many years.

Even when expropriation is used as a last resort in gaining access to private property to meet urgent construction schedules, further attempts are made to reach an agreement with owners before going to the Ontario Municipal Board for a decision. If agreement proves impossible, either party can request the case be heard by the OMB and both have the right of appeal to the Ontario Court of Appeal.

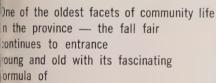
Best evidence of the success of Hydro's efforts to reach agreement with owners is the record of the past five years. Of 36,000 property transactions completed, less than ½ of one per cent had to be settled by final arbitration.

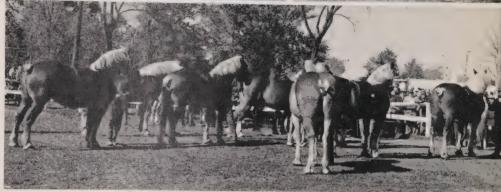












pigspickles&pumpkins

Y LOIS LANE

Prize livestock and produce . . . homeaked pies and the midway . . . the mell of newly-painted farm machinery nixed with the aroma of buttered op-corn and french fries . . . a time or renewing acquaintances . . . and a eminder that the first frosts are approaching.

This kaleidoscope of sights, sounds and smell mean only one thing: the nnual Ontario ritual of the fall fair – a custom as peculiar to the North American scene as the wine festival to the Rhine and colorful wheat arvest celebrations are to Eastern Surope.

In nearly 250 communities across the province these exhibitions and ompetitions entice thousands of pectators and competitors. This year, a tiny Rockton, near Hamilton, the ormal population of 250 swelled to 8,000 as visitors jammed the village or its one day event. The oldest fall tur in the province, held annually at







Markham since 1855, drew approximately 30,000 persons.

What is the compelling force that attracts crowds year after year to these fairs, especially in this age of space travel and sophisticated electronics?

Perhaps it is the whole carnival atmosphere. The gaudy midway with its rides and amusements; candy floss; hamburgers, with fried onions; popcorn; milling people eager to spend another dime on a game of chance.

Maybe it is the mouth-watering mounds of ruby-red apples and golden pears; fat pumpkins and squash; the bursting garden vegetables; all showing off their blue and red ribbons to the crowd.

Possibly it is the glossy animals that circle the show ring, flaunting their fine breeding and sleek grooming in a pedigree parade; or the chance to see a day-old calf or colt nuzzle close to its mother.

Could it be the aroma of freshly-judged bread, cakes and pies that leads you into a display tent? Or the opportunity to see dahlias and chrysanthe-

mums the size of dinner-plates?

Is it the excitement of the tractorpulling contests; band competitions and parades; sky-diving; the RCMP Musical Ride; greased pig or calf scrambles; Highland games; fiddlers' contests; chariot races, donkey races or just plain horse races? The fall fair at Dungannon, north of Goderich, has even offered a wrestling competition on horseback.

Or could the magnetism come from quieter things like watching a woman spin wool; inspecting fine needle work; looking at award-winning paintings and photographs?

Maybe the success of fall fairs depends on who you ask . . . a grand-mother anxiously watching judges taste her pickles; a five-year-old clutching a bouncing helium-filled balloon; teenagers noisily swinging out over the fair grounds in a ferris wheel; an apartment dweller escaping the city fumes; a farmer dipping his hand into prize-winning grain.

Maybe the secret is all these things, for fall fairs continue to be a symbol of Ontario community life.









HYDRO at the fairs...

It wasn't Barnum and Bailey, Adam Beck's "Circus" that intrig them at fall fairs back in 1912. B believed that actual demonstration the best way to sell electricity to people. His circus, consisting of etrical household and farm equipments on display at 11 fairs that I fall.

The "Circus" was indeed the forunner of the modern Hydro displenow presented annually at some autumn exhibitions held across (tario. In these presentations, emph is placed on rural application of etricity, with 65 per cent of the terial farm-oriented. At larger famodels and graphic representations Hydro's vast generating and transplant sion complex are presented.

A giant mobile display coach been touring the fairs since 1959 this year the theme has been cente around electric heat. For the sma fairs, Georgian Bay, Western Eastern Regions have been send out demonstration vans. These plays-on-wheels can be set-up in matter of minutes.

Great importance is attached agricultural fairs, for in some stances, they provide the only opputunity for Hydro to meet its reustomers.

Hydro has been appearing at fall fairs since 1912. Display, left, was at Markham—thought to be the oldest.

ELECTRIC HEATING - A GROWTH INDUSTRY

"We are now riding a wave of growth enthusiasm which has had no parallel in the heating field since the introduction of the central furnace."

Record attendance of over 800 delegates sparked "remember when" conversations during the Electric Heating Association of Ontario's fifth annual meeting and industry conference held recently in Toronto.

Between sessions at the day-long conference, delegates recalled EHA's founding meeting in 1959, which was attended by some 75 representatives of manufacturers, distributors, electrical contractors, and electrical utilities. Last year, over 500 delegates overflowed facilities at the Seaway Hotel, forcing this year's move to the Royal York.

In his opening remarks, Ray Pfaff, EHA president and manager of St. Catharines Public Utilities Commission, commented on the growth and achievements of EHA since its inception. In particular, he stressed that 2,030 people had graduated from EHA's training courses in electric heating.

"EHA takes pride in the rapid growth of electric heating throughout Ontario

during the past five years," he said. "In September, the 10,000th family to choose total electric heating moved into their Medallion home in Scarborough. And by the end of August, 1964, some 2,650 apartment suites, in buildings with 10 suites or more, were also electrically heated."

In his first speech to EHA as manager of Ontario Hydro's Residential Sales Department, Don A. Ramsay tempered his enthusiasm with caution.

"A relative newcomer to the heating field, electric heating in Ontario must nevertheless be considered a growth industry," he said. "In a period of less than five years, and from a standing start, it has forged ahead to a point where, in 1967, it will capture an anticipated 20 per cent of all new singlefamily construction in the province. We are now riding a wave of growth enthusiasm which has had no parallel in the heating field since the central furnace was introduced.

"But all too often, complacency in



Ray Pfaff Catharines received a confidence being elecident of E for a thir





Satirical skit "Where Lady?" took a tongue in cheek look at the ways and means of promoting electricity.

a growth industry has threatened, lowed or stopped the industry . . . because little attention was payed to whatever internal and external forces were at work competing for the industry's 'place in the sun.'

Mr. Ramsay cited the natural gas ndustry as one of the best examples of growth industry ever to establish itelf in Ontario. He pointed out that rom 1954 to 1963, the consumption of natural gas in Ontario had increased welvefold. He said that the gas inustry fully expected that the 1963 evel of gas consumption in Ontario ould double by 1971, and more than iple by 1981. About one-third of the otal demand would represent resiental requirements, and the bulk of its, approximately 80 per cent, would for home heating purposes.

"Nevertheless", the speaker connued, "this tremendous growth inistry is today recognizing that the adow of obsolescence is beclouding e bright future it has viewed through se-colored glasses during the past w years. I believe they now apeciate that there is no guarantee at growth is assured by an expandg and more affluent population, no arantee against product obsoleence, and last but not least, that ore convincing advertising themes, ore effective sales promotional drives, n't measure up if a superior product marketed on the basis of that allportant concept — customer satis-

"We must be on constant alert that

sufficient time and money are expended on research to assure development of additional products and improvement of existing products — excellent as they are — so that the industry as a whole can adapt to the constantly changing pattern of consumer needs and tastes," he said.

Mr. Ramsay thought the EHA had showed its concern for the customer when, instead of rejecting the traditional forms of heat — warm air and hot water — it welcomed them into the association so that the customer would have available to him electric heat in all its many and varied forms, each subject to the same quality controls which would ensure satisfaction.

"Competition has been the life blood of our free enterprise business world. Accept it, deal with it, and remember that a kite rises not with the wind but against it," Mr. Ramsay concluded.

Three technical seminars, each dealing with a separate area of interest for members of the electric heating industry, were held simultaneously. One group of specialists discussed installation and benefits of comparative electric heating systems, while a second group dealt with house and apartment construction, heating systems, and installed cost comparisons.

In the third seminar, dealing with effective sales techniques, R. G. Ellerker, of Northern Electric, described the heating equipment distributor's role in the sale of electric heating.

Making sales calls was the area in which electrical utilities could serve the

electric heating industry best, according to J. R. Riseborough, Oshawa PUC. He thought utilities should become active in the building and real estate organizations, so that they could tell the electric heating story when a project was in the planning stages.

Ontario Hydro's support of the electric heating industry was outlined by C. W. Palmateer, manager of Advertising and Marketing Services. He discussed how Ontario Hydro superimposes sales promotion campaigns on the continuing sales activity in electric heating.

"It was gratifying to us to have utilities in Nova Scotia requesting permission to use our material, and we have sold them a large quantity of the home modernization material currently being used in Ontario." He said that Manitoba was also working with Hydro materials designed for the supplementary electric heating campaign being held October 16 to March 2.

"The Hydro family looks forward to an even closer working agreement with the electrical industry and we are doing our best to ensure that you too will ally yourselves even more closely with us," he concluded.

A vote of confidence was given to Ray Pfaff, who was elected association president for his third term. K. N. Rumble of Toronto is vice-president. Hydro representatives elected directors of the association include: John Tor-

of the association include: John Torrance, Etobicoke Hydro; D. A. Ramsay, and I. S. Widdifield, of Ontario Hydro.



... but Hydro researchers are torturing head gear in a series of tests designed to ensure that those familiar rellow hard hats perform their function of saving lives and preventing serious injuries.

BOB MORROW

Behind a heavy cork-insulated door on he second floor of Ontario Hydro's esearch laboratory, a technician clad n a parka shivers in temperature 20 elow zero. It's as cold as a midvinter day on a Mattagami River contruction project.

He is about to put a yellow hard at — the badge of the utility worknan — through a series of rigorous ests to Hydro's exacting standards.

The hard hat sits on a hardwood ead form mounted on a hinged metal rm of the test apparatus, which reembles a miniature ironing board. directly above, a powerful electrolagnet grips an eight-pound steel ball. The technician flicks a switch: the

all falls and bounces off the hard hat. successfully survives the first test -) foot-pounds of force directed juarely on the crown.

It's as if a lineman standing erect ad been struck by a one-pound rench falling 40 feet from a tower a 40-pound tree limb had dropped le foot on a forester's protective head-

"Some types of hard hats shatter ider this impact in cold weather,"

says John Platt, a research engineer who's a recognized expert in the field.

Later the technician doffs his parka and repeats the impact test in the confines of the hot-cold room, now electrically heated to a sweltering 120 degrees.

A penetration test is next. A 16ounce pointed plumb bob, sharper than most screw drivers, plunges 10 feet to the hat. Specifications say it must not penetrate more than three-eighths of an inch.

In wearing a hard hat, there must be 11/4 inches of vital air space between the top of your head and the shell. If your hat's suspension is fixed, as most new ones are, or adjusted properly with a lace, this gap may save your life. (Several years ago a pointed wrench pierced the unlaced cap of a man and killed him).

John Platt explains that, considered together, impact and penetration tests show if the hard hat can withstand puncture and absorb the shock of falling objects. At the same time the suspension or harness inside the cap is subjected to accompanying stresses and strains.

In a third test, a technician thrusts a sample of the hat's thermoplastic shell into a bunsen burner's hot jet to ensure it will never burst into flame.

If a hard hat passes these tests, along with a number of other criteria, such as weight (no more than 141/2 ounces), suitable suspension, comfort, appearance and, of course, cost, it's approved for use by Hydro forces.

But there's more to hard hat safety than meets the eye, says John Platt, reviewing the development of sophisticated test procedures and the evolution of protective headgear.

The hard hat commonly used today is actually a cap. It resembles the helmets of early Greek and Roman warriors as well as space-age military headgear, and evolved from a workday "hard hat" which can be traced back 45 years.

What's the difference between a hard hat and a hard cap? A hard hat looks something like a World War II British or Canadian army helmet. The hard cap has merely a short peak and a suggestion of the hard hat's wide brim. Most people, however, lump the two types together — as hard hats.

Hydro still stocks the older hard hat model — a few workmen prefer them because they shed rain better but hard caps now outnumber them



by more than 10-to-1. John Platt says an unsung construction worker cut off the hard hat brim, started a fad and the manufacturers followed suit.

A California firm which sponsors the famed Turtle Club — a fellowship of people saved from death or serious injury by hard hats — claims to have originated the hard hat in 1919. But protective headgear didn't come into general use by workmen until after World War II.

Nearly 70 Ontario Hydro workers, and about 40 employees of municipal utilities associated with Hydro, are among the thousands of people who are acutely aware that but for safety hats they might be dead. As Turtle Club members they proudly wear lapel pins and hard hats bearing the turtle insignia.

The club's slogan is "Shell on head

- we're not dead."

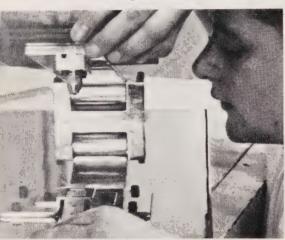
Ontario Hydro is now gradually replacing fibreglass headgear (actually polyesther resin reinforced by a glass matting) with rugged polycarbonate hats. Among the advantages of this tough material are greater impact strength, and durability. It also stands up in sub-zero or scorching temperatures.

Unlike some other types, polycarbonate hats can take repeated hammer blows in demonstrations, says John Platt, although it's by no means a recommended procedure.

Robert Harrison, director of Hydro's Accident Prevention Division, says polycarbonate hats are the best available today, because of the rapid development of thermo-plastics. "But next week another product may be more desirable."

In 98 per cent of the accidents recent years where hard hats he prevented serious head injuries, hats worn have been fibreglass. "I important thing is to wear a saf hat — and to wear it properly."

Hydro, which began testing h hats in 1949, has been a leader this field in Canada. It's also shall leadership in using them. First w by construction workers, safety he gear came into use in 1954 for wide range of employees. Approsafety caps are now worn by employ in many lines of work, including c struction, forestry, operations, maintenance and switching.







Hard hats are checked for impact, fire resistance and suspension in this series of tests undertaken at Hydro's research centre.

The fanciest hard hat you've ever seen belongs to R. H. Hillery, Hydro's director of operations.

He traces its decorative origins back 350 years to the days when the great Shah Abbas imported Armenian silversmiths to glorify Iran's former capital city of Isfahan.

Today in the bazaar at Isfahan — a city famous for its mosques and royal palaces — you can see descendants of these artisans hammering gold, silver, copper and brass into fine works of art. And, as Mr. Hillery's intricately engraved hard hat shows, they do pretty good work in aluminum.

The hard hat was likely stolen from an Italian construction worker on the Dez River project, where a Hydro team has been operating the Mohammed Reza Shah Pahlavi generating station and training Iranians to take over.

In fact, the thief must have taken several hard hats because three engraved by Isfahan silversmiths eventually were offered for sale in Ahwaz, more than 100 miles away.

Don Haig, Hydro's plant superintendent at Dez, found the hats in the only Ahwaz shop that handles Isfahan wares. The fine engravings depict life in the arid province of Khuzestan — a maid milking a cow, a man on a donkey, goats, birds and deer.

HARD HAI DELUXE

While on leave last June, Don Haig presented one the hats to the director of operations, who has given place of honor on his hi-fi set.

It's a safe bet even Shah Abbas would have been pr to sport such a hard hat!





Joanne Pipher, 12, is all smiles as she receives essay prize from Hydro Chairman W. Ross Strike.



Arthur Mix, a member of Cannington's first Hydro Commission, recalls days when electric power was in its infancy.



It was a proud evening for Cannington Hydro Chairman Angus Jewell, left, Miss Islay Lambert, secretarytreasurer, and veteran George Henderson of the Cannington commission, pictured at the jubilee celebrations.

CANNINGTON CELEBRATES FIFTY YEARS OF HYDRO

Opening of Wasdell Falls recalled in Hydro celebration

Several residents remember the eventful day 50 years ago when public power came to Cannington. But thoughts were more on the future, as Cannington Hydro-Electric Commission celebrated its golden jubilee.

The two-day celebrations in the village, 15 miles west of Lindsay, were attended by more than half of Cannington's 1,000 citizens.

Events included a visit from Hydro Showtime, a program put on by Ontario Hydro's Home Services. Cannington electrical dealers co-operated in a display of the latest electrical appliances.

Guests were received at the celebrations, the first major event held in Cannington's reconstructed Memorial Centre, by Angus Jewell, chairman of Cannington Hydro, and Miss Islay Lambert, secretary-treasurer.

The advent of Cannington Hydro is bound up with an important milestone in the early history of Ontario Hydro. Cannington was one of several communities on the eastern shore of Lake Simcoe which requested service from Hydro, and to serve them Wasdell Falls hydro-electric station was constructed 32 miles north-west on the

Severn River. The 750-kilowatt station — withdrawn from service in 1955 — was the first built by Hydro.

For some, like George Henderson and Arthur Mix, last month's celebrations were understandably an occasion for fond memories, Mr. Henderson, 89, one of Canada's oldest practising druggists and a member of Cannington Hydro for 30 years up until 1962, vividly recalls the opening of Wasdell Falls, including a riverside picnic at which Sir Adam Beck, Ontario Hydro's first chairman, served guests with tea and toast prepared in appliances powered from current generated at the new station. The memory is shared by Mr. Mix who also continues an active life in Cannington. He was a member of council from 1916 to 1919 and chairman of the Hydro committee of council during that period. As reeve in 1919, he was a member of the first Hydro commission.

With the opening of Wasdell Falls in 1914, the old steam generator, which since 1893 had supplied Cannington with power, chugged to a halt for the last time. It had been shut down every evening at 11 o'clock. Cannington Hydro came into being with a debenture debt of \$12,000. Over the years the system has been expanded and modernized to meet increasing demand.

Total value of plant today is appr mately \$87,000.

Other events from the past v briefly recounted by W. Ross Str chairman of Ontario Hydro, at an formal reception. He reminded audience: "We are only on the th hold of the use of electrical energy

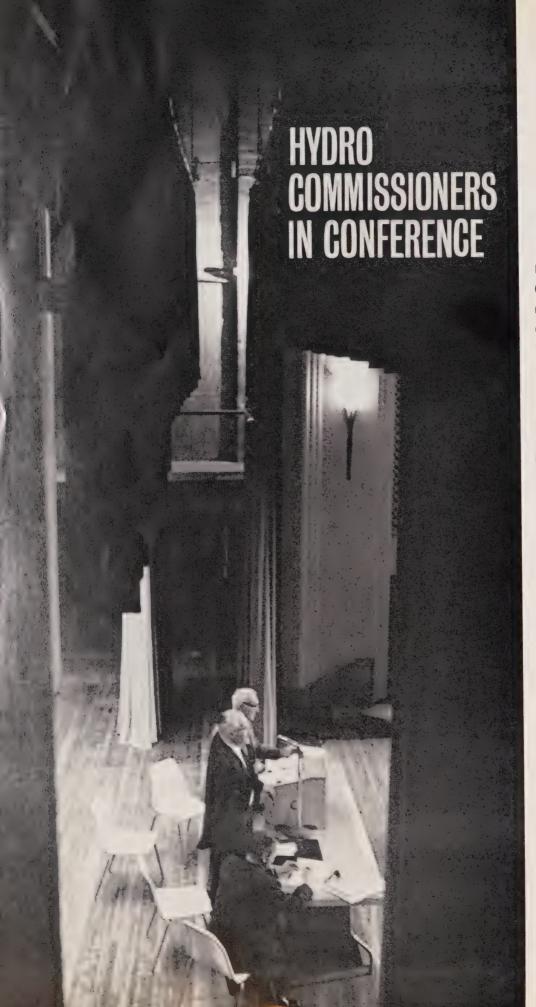
For school children there vectors, and an essay contest we was won by 12-year-old Joanne Pir daughter of a Cannington lineman

Two of Cannington's Hydro pion were honored through their desc ants. Door prizes were drawn by Henderson's granddaughter Edith I man, and eight-year-old Adam Dob great-grandson and namesake of man who owned the old steam gen tor, and also sold the Wasdell I site to Hydro.

Following the vote in favor of pupower at Cannington, Hydro af were conducted by a committee council. From records she has stue Miss Lambert concludes that as Hymatters occupied more than half time at council meetings, it was decin 1919 to elect a separate comsion.

Sir Adam Beck, Ontario Hydro's first chairman, is pictured, centre, at opening of Wasdell Falls generating station. Photo was taken in 1914 by George Henderson of Cannington.





District groups of the
Ontario Municipal Electric Association
meet across the province to
deal with administrative problems in
the field of electrical distribution
and service. The Association and
its member utilities work closely
with Ontario Hydro in directing
the publicly-owned Hydro enterprise.

Lindsay Hosts District 1

Communities west to Whitby, east to Quebec border and as far north as Deep were represented at the annual conventi District 1, OMEA at Lindsay. Close to delegates took part in discussions on topics as safety in utility operations, relations, sales promotion and future t in power generation.

Harry Flack of Toronto, manager of Electrical Utilities Safety Association, with that accidents among utility employees up 25 per cent this year. Although soft the increase was due to changes in Work Compensation reporting procedures, as same time the actual rate of utility accident industrial type as well as election was definitely on the rise.

Urging utilities to take advantage of v safety training programs, Mr. Flack dec "We talk safety, but I can't help wonde all of us mean what we are saying. I there is a positive attitude at the top can hardly expect it to filter down the

Questioned on escalating construction at the conclusion of an address on power generation, Harold Smith, Hydro's ant general manager, Engineering, said improved techniques were helping absort of the higher costs. He said the cost of p concrete at new hydro-electric stations Mattagami River was actually less the construction sites on the Ottawa Riv years ago. Remedial work recently corr

COMMISSIONER **EDUCATION DISCUSSED** AT DISTRICT 6

in the Niagara River also cost less than imilar work completed several years earlier.

Lively debate took place at the meeting on he question whether municipalities should ithdraw from the Labor Relations Act under ection 89. The subject, raised in a resoluion from Perth PUC, was ultimately talked ut. The general sentiment expressed was 1at the recognition and certification of unions as a matter for each individual municipality decide.

The meeting endorsed a resolution asking he directors to generate new interest in the ssociation, in view of the drop in attendance om last year. It was suggested from the oor that waiving registration fees for deleates' wives would probably help attendance. so endorsed was a resolution that Ontario ydro launch a long range program on reearch of new and improved load building

Factors to consider in judging the effecveness of a utility's operation were analysed depth in a paper by Ontario Hydro's Comptoller W. Dennis Gillman. The second part of is warmly-received presentation dealt with reparing an expense budget. The author is ilan Nastich, manager of Budget and Finicial Reporting.

(A limited number of copies of this joint esentation is obtainable on request.)

Named District president was Lorne A. addell, of Lindsay. J. R. Philips, Brockville, d Henry Baldwin, Oshawa, were elected viceesidents.

oser Liaison Urged

tario's Hydro family — like any other interated group — is only as strong as each ember. Delegates to District 1 annual meetat Lindsay were reminded of this when Ross Strike, chairman of Ontario Hydro, led for closer liaison between local comssions and regional offices.

Discussing the recommendation of the ect Committee on the Municipal Act that ity administration be taken over by couns, he said the proposal had had good effect

in shaking some commissioners out of their apathy.

Forecasting a tremendous growth period ahead, the chairman reminded the audience that Ontario produces 45 per cent of the gross national output and 50 per cent of the industrial output - and that electricity is the lifeblood of it all.

"The time is past when commissioners went to meetings just to pass bills. We now have a real job to do. If you want to stay in your own backyard and disregard others' developments, it will close in on you in very short

Mr. Strike said that all utilities have a responsibility to keep abreast of new trends. Urging commissioners to make full use of Hydro's regional offices he continued:

"Enquire and search for all the information you can get from them. In this way, and in this way only, will you be in the vanguard and keep the province economically strong."

He also urged commissioners to give their utility managers all assistance possible for mutual benefit.

"We are now moving into a new era and commissioners will play an important part in future growth. We need to re-create in the minds of the public that Hydro commissioners are responsible people doing a serious job."

While the entire Hydro function is envied in many countries outside Canada, some municipalities appear hesitant to give it the boost it deserves, the chairman continued.

"Newly-emerging countries are coming forward to seek our help, and they want our entire set-up transferred to their own countries. In half-a-dozen projects our experience in operations and administration is being made use of, and additional requests are likely in the future. Hydro may end up with a foreign legion, but this just shows the confidence in what can be achieved through public development of natural resources."

More than 120 delegates attend OMEA meeting in Listowel.

Commissioner education was one of the main topics of discussion at the recent annual meeting of District 6 of the Ontario Municipal Electric Association, held at Listowel.

Attended by 122 delegates representing some 30 utilities within the area roughly bounded by Goderich, Palmerston, Guelph, Galt and Stratford-St. Mary's, the meeting heard Ontario Hydro Chairman W. Ross Strike forecast a "steady if not spectacular" growth in the use of electrical energy. "Your loads are going to go up," he told the commissioners, "you have big business on your hands and you must keep up with improved techniques in electrical distribution and service."

He expressed full confidence in the ability of his listeners to deal with their ever increasing responsibilities — a task which demanded "dedication and plenty of homework."

Expressing similar sentiments, E. C. Dash, past president of the parent OMEA, urged delegates to keep abreast of the many new developments in the field of utility operations. He outlined the contents of a new Hydro commissioner's handbook, which is being prepared at the request of Association members, to help them carry out their responsibilities in all areas of Hydro operations. He said it dealt with matters ranging from the history of Hydro to sales promotion and from public relations to the ground rules of chairing a meeting.

"Do not lay this booklet aside", Mr. Dash admonished, "it is your duty to study and digest its contents and to keep our overall program of education alive and active.'

Delegates to the District 6 meeting were given valuable insight into the nature of the competition they face in selling electric energy by Don Ramsay, manager of residential sales. Ontario Hydro. In his address, "Know Your Competition", Mr. Ramsay spoke at some







length on the natural gas industry and described its marketing objectives and promotional techniques.

He had words of warning for the electrical industry in two areas — both at the customer level. Price cutting, he cautioned, should never be pursued to the point where quality and customer satisfaction were sacrificed. Inattention to new product development was the other danger pointed out by the speaker. Without constant attention to customer tastes and requirements, he said, a growth industry gradually becomes an obsolete industry.

Hydro customers were also foremost in the mind of OMEA President John McMechan. The greatest danger to an organization which has won security through sound performance over a period of time, Mr. McMechan said, is to forget the customer. "As we grow larger", he said, "the people we serve tend to become anonymous. Hydro is thriving — let's see to it that our customers are kept smiling."

In reiterating a theme he has pursued throughout the District meetings this fall, Mr. McMechan called for greater uniformity in administrative and operational procedures on

DISTRICT 1

DISTRICT 6

Between business sessions, District 1 delegates inspect design of insulator cover. Left to right: Jack Lightbody, Lindsay; James Ross, Whitby; V. R. Sequin and S. F. Mousseau, Chalk River.

Congratulations for a well organized meeting are offered by OMEA President John McMechan, left, to host commissioners Tom Moffat and John McMichael of Listowel.

Members of the new District 1 executive, left to right, front: Dr. R. N. Hay, Kingston, past president; Lorne Waddell, Lindsay, president; Harry Baldwin, Oshawa, vice-president. Rear: R. C. Johnston, Peterborough, director; Jack Lightbody, Lindsay, secretary; A. W. Smith, Almonte, and Dr. J. L. Walsh, Perth, directors. Absent are J. R. Philips, Brockville, vice-president; W. L. Andrews, Cobourg, and R. K. Elliott, Deep River, directors.

Plenty of Hydro experience is represented by this trio of District 6 veterans. Left to right are: Harvey Hawke, Galt; Eby Rush, Waterloo, and G. H. Glover, St. Mary's.

Dr. Hay briefs members of the new executive. From left, Dr. Hay, L. A. Waddell, H. F. Baldwin and Jack Lightbody.

Members of the new District 6
executive, left to right, are: George
Sheperd, Elora, 1st vice-president,
A. D. Simpson, Stratford, president; G. D. Sills, Seaforth, 2nd vicepresident; Doug Seath, Stratford,
secretary. Centre row: directors C.
Lipphardt, Harriston; W. J. Mills,
Goderich; H. E. Hartley, Clinton,
H. M. Scheifele, Waterloo, and
J. Fred Edwards, M.P.P., Palmerston, past president. Back Row:
directors J. M. Lind, St. Mary's;
W. J. Kelterborn, Milverton; G. R.
Cook, Preston; A. McGugan,
Palmerston, and M. Fisher, Galt.

the part of the local utilities. He said this would eliminate much of the confusion which exists among customers moving from one municipality to another. He hoped that regional committees would be formed to study those areas where standard practices could be adopted — practices which could eventually be considered on a province-wide basis.

A highlight of the meeting, the election of officers, saw A. D. Simpson of Stratford named president. George Shepherd, Elora, became 1st vice-president and G. D. Sills, Seaforth, 2nd vice-president.

District 6 delegates were unanimous in endorsing a brief previously presented by the parent association to the Select Committee on the Municipal Act. The brief was in rebuttal to the Select Committee's recommendation that the function of the public utilities' commissions throughout the province be carried out by municipal councils.

Other items on the business agenda included a motion that Ontario Hydro be asked to purchase the cabs and chassis of its vehicles in the areas in which they would be used, rather than by the system of







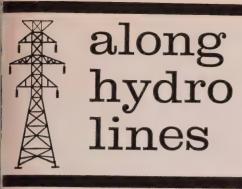
central purchasing. Some felt this would help local utilities to purchase at lower cost through the Ontario Hydro outlets.

In discussing the format of the annua meeting of the parent association, held in Toronto, the opinion was expressed that re solutions, "the backbone of the convention" should be cleared up before the last day as many commissioners depart by that time.

A suggestion was also made that the annua meeting include a session on waterworks since most commissions were responsible for this function.

District 6 voted to continue its support of the Ontario Public Speaking Contest and commissioners were urged to participate, as well at the local utility level, by T. J. Moffat of Listowel.

The public speaking contest was also men tioned by Mr. Strike who said he was always most impressed by the ability of the young participants. "None of our promotions have a more far-reaching effect," he said "and is one area where we can make a real con tribution to youth while furthering our own cause."



UC Manager at International Conference

John Dawson, manager of Dunnville PUC, has been named Canadian delegate to a 17-nation conference on electricity and meters, which opened in London, November 14. He is attending the week-long conference as a representative of both the Association of Municipal Electrical Utilities and the Canadian Standards Association.

For the past six years, Mr. Dawson has been chairman of the Canadian National Committee of the Inter-Electro Technical Commission, which is under the auspices of CSA.

Host for the London conference, which will be attended by delegates from both sides of the Iron Curtain, is the British Standards Institute. Several trips will be made to British plants during technical studies at the conference.

Held every two years, the conference theme for 1964 is "Measuring Instruments." It is the first time Canada has been represented by a PUC manager.

ant Steam Plant in Service

One of Canada's tallest building complexes will be heated by Toronto Hydro's second steam plant, a fully automatic, \$3,000,000 operation recently opened by Mayor Philip Givens.

The new oil-fired plant is equipped with three boilers, each capable of producing 100,000 pounds of steam per hour. Steam will be delivered to customers through a network of pipes placed under city streets.



At the opening are: left to right: Ontario Hydro Commissioner R. J. Boyer, Mayor P. G. Givens, Chairman Bertram Merson, General Manager H. Hyde, Controller W. L. Archer.

Largest of the 25 customers already under contract is the 56-storey Toronto-Dominion Center, presently under construction. It is expected to require 80,000 pounds of steam per hour at peak periods from the new downtown plant. This is enough steam to heat approximately 2,000 homes. Steam will be the total heat energy source for the office tower, banking hall and shopping complex. It will even provide power for an emergency standby 700-kilowatt turbo-electric generator.

The boilers in the new plant are expected to consume some 3,000,000 gallons of oil in the first year of operation. The plant was designed with expansion of the Toronto Hydro heating program in mind and can be enlarged to handle three times present capacity.

This is the second steam plant to be put into operation by Toronto Hydro in the past year. The first employs electric boilers to generate steam and utilizes offpeak power. It is supplying heat for the old City Hall, its annex, the new underground parking garage and sections of the new City Hall already completed. All the buildings in the new Civic Square will be connected to this system.

Lady in Distress



Welland Hydro's aerial basket came to the rescue when a woman was trapped on the upstairs balcony of her home during a fire in that city. The truck-mounted basket was used because the woman refused to come down a firemen's ladder.

Greater Nuclear Role

Ontario Hydro is confident that energy produced by future nuclear power plants will be cheaper then electricity from coal-fired generating stations.

Addressing members of the Canadian Electrical Manufacturers Association at their annual convention in Niagara Falls, General Manager J. M. Hambley said "Our confidence is such that we are suggesting the probability of 3.2 million kilowatts of nuclear power on our system by 1975."

Mr. Hambley, recently elected president of the CEA, said that because electrical utilities have "the highest ratio of capital investment per customer of any of the utilities which sell energy," it is imperative for them to promote specific types of electrical load, which keep their system facilities "as busy as possible at all times and not just during peak demands."

Calling for greater unity of effort among electrical

utilities and manufacturers, the Hydro executive expressed the view that "we have a common incentive in the knowledge that success in our efforts means further improvement in the living standards of Canadians.

"The 'Cascade 40' electric water heater campaign, which has set sales records across Canada, has demonstrated that co-operation in sales promotion can benefit

both groups," he continued.

"Here was a case where by standardizing certain performance features, manufacturers have been able to mass-produce the heater, thereby lowering the unit cost and passing on a substantial saving to the customer. This has encouraged many customers to buy 'Cascade 40' in preference to our competitor's product."

Hydro at The Plowing Match

Straight furrows were the order of the day when 419 competitors met at the International Plowing Match and farm machinery demonstration held near Peterborough. Winner of the Ontario Hydro award, Gordon Fearman, 16, Hagersville, won a wall-mounted electric heater.

To meet the electrical service requirements of the competition's "tent city", more than 60 hydro poles, along with wiring and transformers, were installed. Another service provided by Hydro was a hot-water tent where four Cascade 40 tanks supplied 26 caterers during the four-day events.

Electric Heating on a Grand Scale



Thought to represent the largest installation of electric heating equipment in a Canadian residential structure, the newly-completed 18-storey Clarendon apartment building in Hamilton, shown, contains more than 1,700 electric heating products and components. This is enough to heat 106 average sized split-level homes. Total heating capacity is 1,167 kilowatts.

Baseboard assemblies provide individual comfort control for each room of the 255-suite building. The main lobby, entrance and utility areas are heated by fan-driven wall units. These incorporate automatic overload circuit breakers and built-in thermostats.

Electric Mail Carts



It's the machine age and to prove it, the Aluminur Company of Canada in Kingston recently replace three girls who carried the mail through their Sout Plant with two sleek electric carts. As shown, they ar quite similar in design to the golf cart. On each ha hour trip the cart makes some 31 stops.

MUNICIPAL BRIEFS

A. S. Kemp, district supervisor, Electric Service League, Western Region, has been appointed fiel supervisor for Ontario and will be headquartered i Toronto. Mr. Kemp succeeds Hill Slean, who is reti ing because of ill health. Lou Staples will replace M Kemp in London.

Both the Town of Powassan and the Township Gloucester are considering the purchase of the distr bution systems from Ontario Hydro.

Kingston home economics teachers prefer electric at pliances for their schools, according to a report in the Kingston Whig-Standard. Their preference becam known when gas appliances were offered on the san cost-free basis as electrical equipment.

Milton Hydro is going to let water heater custome decide between a flat rate or a .7 cent metered ra in the future. Only a flat rate had been available in the past. Customers will be canvassed for their preference and will have the choice of switching back to the flat rate in six months if they find it to their advantag

North York Hydro has been telling customers abou its free water heater maintenance program by dire mail and following-up with personal calls. The pro gram has been so successful that two new sales rej resentatives have been added and electric heating home lighting and wiring are now included in the doo. to-door promotion.

Many older homes in Ajax are now being converte to electric heating thanks to a lively promotion campaign being carried out by Ajax Hydro. The utility has undertaken financing of electrical heatir in older homes for amounts up to \$1,000 payable over five years at six per cent interest on the unpaid yearly balance.

Oakville PUC was host to 40 municipal utility supervisors from all parts of Ontario and an observer from New Brunswick Power Commission at a three-day course on live-line safety techniques, sponsored by the Electric Utilities Safety Association.

The strike of employees at Perth PUC had entered its fifth month at the time of writing.

Trenton PUC plans to build a \$25,000 storeroom and garage for utility equipment this fall.

Harold Acornley of Toronto rescued fellow-lineman Roy Seabrooke from a burning pole recently. Seabrooke had climbed up to cut off power to a smoking transformer when oil in the transformer ignited. The lineman found he was trapped in his own safety belt. Acornley climbed into the flames to free his work-mate. Both men were treated for burns.

Strathroy PUC plans to construct a new single storey office building as an addition to the present service centre. Estimated cost is \$52,000. The present office building would be sold.

Willecho Mines at Manitouwadge in Northwestern Ontario has begun building a 44-suite apartment complex for its employees which will be electrically-

North Bay Hydro has been spending \$40 a week to replace street lights all broken on the same street. To counteract this vandalism, the commission has offered a \$25 reward for information concerning the identity of the persons who are apparently using the lights for target practice.

Midland PUC has set up committees to govern the various functions of PUC operations. Each committee, covering finance, property, water and Hydro, is headed by a commissioner and the mayor serves on all four. The change was made by a special committee appointed to study PUC procedures. It was the committee's feeling that with each commissioner doing a specific job, it would create greater interest in PUC operations.

John Rousom, technical advisor with the Galt PUC for the past six years, has been appointed Woodstock PUC manager, filling the post left vacant by the death of P. G. Sanderson. Before coming to Galt, Mr. Rousom had been with Consumer Service Division, Ontario Hydro. He is a graduate of Toronto University in electrical engineering.

Mayor C. Boorman, of Peterborough, a commissioner with the Peterborough Utilities Commission, died recently. Mr. Boorman had been mayor of Peterborough for two years.

Million Contract

Frankel Steel Construction of Toronto will fabricate and erect the structural steelwork for the portion of the building housing the final two units at Hydro's Lakeview Generating Station on the western outskirts of Metropolitan Toronto. The firm's \$2.3 million tender was the lowest of six received.

The order includes the principal framework for this section of the thermal-electric station, as well as the steel supports for the roof, floors and equipment.

Five new generators will be added to Lakeview during the next four years. With eight units in service, the plant will have a total capacity of 2.4 million kilowatts. It will be the largest thermal-electric plant in Canada and among the largest in the world.

Seaway Authority Donates Generator



The original power generating equipment used to operate the Sault Ste. Marie locks in the 1880's was presented to Lt.-Col. A. A. Kennedy, Ontario Hydro commissioner, center, by John Bouchard, St. Lawrence Seaway Authority superintendent, right. Looking on is William Hogg, Great Lakes Power Company president, whose company now supplies power to the locks. This 1,000 pound Edison bi-polar generator was of the type patented in 1880 and was manufactured before the turn of the century at the Canadian General Electric Peterborough Works. Engineers at CGE think the 6-kilowatt generator was in use until 1910. It will be added to the Ontario Hydro collection of early Canadian electrical equipment.

Regional Hydro Manager Dies

H. R. D. (Rolly) Graham, manager of Ontario Hydro's Northeastern Region, died recently of a heart attack at his home in North Bay. He was 56.

Active in community and church affairs, he had been regional manager at North Bay for the last 16 years. He is survived by his wife Audrey, and two sons, George, 23, and Barry, 19, both attending university.

A native of Toronto, Mr. Graham attended Oakwood Collegiate and graduated from the University of Toronto in mechanical engineering in 1930, the same year he joined Ontario Hydro as assistant district operating engineer in Northwestern Ontario. He was appointed manager of Northeastern Region in 1948.

Mr. Graham was responsible for Ontario Hydro operations over a 107,000-square-mile area, serving more than 121,000 power consumers.

Reaching for the Sky



This reinforced concrete structure, now being erected at the rate of over seven feet a day, will soon stack up to the 500-foot height of the other two chimneys at Ontario Hydro's Lakeview station on the western outskirts of Metropolitan Toronto. Present output of this plant is 900,000 kilowatts from three units. By the late sixties, when eight units are in operation, its capacity will be 2,400,000 kilowatts. The estimated cost is \$269 million. The chimney shown is about one-third completed. On completion of the station, there will be four chimneys.

Nuclear Plant To Convert Sea Water

The United Arab Republic has announced plans to build a three-plant complex which would use nuclear power to convert sea water for irrigation purposes. Included in the scheme are a 150,000 kilowatt nuclear power station, an associated desalting plant capable of purifying 20,000 cubic meters of water daily, and a fuel processing plant. Target date for completion is 1969. □

Chippawa Canal Back in Service

Ontario Hydro's 43-year-old Chippawa power canal, drained last May for deepening, cleaning and repair work, is back in operation.

Improvements to the 7½-mile canal, which supplies about one-quarter of the water used by the Sir Adam Beck-Niagara generating stations at Queenston, are being made to increase the output of the two plants during the winter when electrical demands reach their maximum level. The project is scheduled for completion next year.

Workers have deepened the canal up to 13 feet in certain sections to augment the water flow by 6,500 cubic feet a second. This will provide for an 11 per cent increase in electrical output at the Queenston stations

This winter the City of Niagara Falls will again draw fresh water from the Welland River and the canal will handle discharge from the sewage treatment plant. Cyanamid of Canada Limited's plant will resum pumping cooling water from the canal.

Temporary pipelines, built by Hydro to supply thes services during the closure periods, will be maintaine and pumps winterized. They will be ready for use whe the canal is dewatered next year.

Deepening of the canal does not affect the amoun of water passing over Niagara Falls, which is regulate by international treaty. The additional water will be diverted from Hydro's Cascade plants. These plant the Ontario Power and Toronto Power, will continut to operate when sufficient water is available.

Marine Generator Developed

The Hamilton Watch Company of Pennsylvania had eveloped a mechanical device, working much the same way as the self-winding mechanism of an automatic watch, which captures motion created by ocea waves and converts it into a force that can rungenerator, charge a battery or transmit an electron signal. Hamilton engineers say that it could act as power generator for buoys, or automatically wirmarine chronometers. The prototype weighs less that a pound and measures three inches each way.

Huge U.S. Power Project

The largest regional electric power development program in the world, covering nine Western states, he been announced by Western Energy Supply Transmision Associates (WEST), the organization formed carry out the program. Comprising 10 electrical utilitie the organization plans to develop new generating st tions and transmission lines at an over-all cost of \$10 billion.

With long-range planning calling for 36,000,00 kilowatts of capacity, the WEST project will be three times greater than the present size of the Tennesse Valley Authority, or equivalent to 18 Grand Could Dams.

Extra-high-voltage transmission lines will inter-connect member utilities with power sources.

September Energy Production

Primary energy provided by Ontario in September, 1964, totalled 3.23 billion kilowatt-hours, an increase of 7.8 per cent over the same month a year ago.

For the first 9 months of 1964, the total is 29.79 billion kilowatt-hours, up 8.0 per cent over the same period last year.

Adjusted for seasonal influences, primary energy demand in September was 3.42 billion kilowatthours, 3.0 per cent more than the previous month.

The seasonally adjusted total for September represents 41.08 billion kilowatt-hours at annual rates. This is 295.3 per cent of the energy demand in 1949.

OFF THE WIRES



■ Proving once again that electricity is a bargain at almost any price, there's a Canadian community of 200 souls paying well over 15 times the average Ontario rate. Electrical World magazine reports that electricity has come to Old Crow, in the Yukon territory, 60 miles north of the Arctic Circle.

Rates are 25 cents per kilowatt-hour, with a \$10 minimum monthly bill. The power plant consists of three diesel units with a combined output of 110 kilowatts. Oil flown in by aircraft is stored in an 8,700-gallon tank, and costs 90 cents a gallon in Old Crow.

Old Crow's population consists of natives engaged in trapping, and non-natives in government service, church work and education. Until two natives are trained to maintain the plant, — operated by Yukon Electrical Company, a subsidiary of Edmonton's Canadian Utilities Limited — maintenance personnel will fly in monthly from Whitehorse to do the job.

■ Northeastern Ontario claims the first electrically-heated baptismal tank in Canada. It has been installed in West Ferris United Missionary Church, an all-electric structure which was largely built by members of the congregation in the township, south of North Bay. The wood and steel font is eight feet long, three feet deep and four feet wide. Water temperature is controlled by thermostat. Church officials had originally considered a hot water tank for the purpose.

Incidentally, sales staff from both west Ferris Hydro Commission and Ontario Hydro's regional office rolled up their sleeves on weekends and pitched in with other volunteer workers to help build the church

Sales at any cost seems to be the motto up North!

■ England is importing fish to help produce electricity. Hong Kong carp, which grow to 70 pounds, are renowned for munching aquatic weeds, so they were introduced to help keep intakes clear for the generating station at Barrow-in-Furness. For the long trip, the fish were

kept cosy with electrically-heated tanks. Seems only fitting, somehow.

- There's plenty of room for expansion in one specialized appliance field: electric toothbrushes. Seems researcher Dr. R. A. Heiser of New Jersey did a continent-wide survey to see how many people brushed better electrically. The biting conclusion: 40 per cent of us don't use toothbrushes of any kind. At about the same time, the American Dental Association said the novelty of electrical scrubbing could help small fry develop a good habit.
- Radio and television personality Al Boliska raises the exciting possibility of electric pyjamas coming on the market. EPJ's, to coin a new set of initials, are only one step (an extension if you like) of the electric blanket, and they would offer utilities an entirely new tack in dealing with slow-paying customers.

Boliska outlines a suitable letter: "Dear Mr. Smith — If we do not receive payment of your hydro bill within five days, we will be forced to cut off your pyjamas."

The more subtle utility might simply suggest cutting the cord.

■ Under the heading "Making Light of Ontario Hydro", the Parade column in MacLean's Magazine recently drew attention to a rather embarrassing situation which once existed in the Western Region. The item read:

"Ontario Hydro is proud of its handsome new regional office on Wellington Road in London, and makes a lot of the fact that it is both illuminated and heated entirely by electricity. The people who work there try not to notice the adjoining billboard advertising a local restaurant with the slogan, 'Eat in our Gaslight Room'".

Far from attempting to ignore the offending sign, the ever-alert Western Regional folk strove mightily to remedy the situation in time for the official opening of the new building. And they succeeded with three days to spare.

Admired by the hundreds who gathered for the opening ceremonies, the billboard

now reads: "Power Is Progress — hydroelectric rates in Ontario are among the lowest in the world." It is signed — "your hydro."

- Providing sidewalk superintendents with peepholes through which to view building projects is nothing new but the Royal Bank people have gone a few steps further at the site of their new building in downtown Toronto. In addition to king-sized viewing apertures, the bank provides music calculated to overcome the discordant sounds of construction. A bulletin board informs bystanders of the state of progress and there is even a rack containing the latest issues of the bank's news letter.
- Since our article on University Avenue appeared in the September, 1964 edition of Hydro News, we have learned of an ambitious lighting project which, if it comes to fruition, will transfer this Toronto thoroughfare into one of the most outstanding night-time showplaces on the continent.

Conceived originally by Harry Hyde, general manager of Toronto Hydro, the "Avenue of Light" idea has been favourably received by a number of property owners on the Avenue who have met on two or three occasions to discuss the project.

The lighting scheme, as interpreted in a booklet prepared by Canadian General Electric, envisions three basic concepts — improved street lighting, landscape lighting of the central mall and floodlighting of the individual buildings.

As the brochure points out, each basic portion of lighting, although considered and planned individually, would complement every other basic area.

Few will argue with the merits of the scheme but it will depend for its success on the spirit of co-operation which each party brings to the planning table. Each property owner would be responsible for his own premises, of course, and many are enthusiastic on the grounds that the longer a prestige building is in view, the greater its value to the occupant as an image builder.

Edward, how is it the nursery is so much cosier than before?

ELECTRIC HEATING, YOU DOLL!





Got a chilly nursery? Adding a new room? You can make any room warm and livable with electric heating. It's simple and inexpensive to install and operate. You can add electric heating without disturbing your present heating system. And it will cost you less to install than it would to extend your present system. Flameless electric heating is the quietest, safest, cleanest heating system ever devised.

Electric Heating Information Centre. The specialist at your Hydro's Electric Heating Information Centre can give you complete information on the type of unit best suited to your room, installed cost, operating costs and help in arranging installation. Call now.

your hydro

This advertisement is one of a series being made available by Ontario Hydro to the municipal electrical utilities, without charge, for use in conjunction with the supplementary electric heating campaign being conducted from October 16, 1964 to March 2, 1965.





A CHRISTMAS MESSAGE FROM THE CHAIRMAN

Through the centuries the celebration of Christmas has changed many times in form and tempo, but even in the so-called sophistication of our present time the angels' song of "Peace on Earth — Good Will toward Men" still attracts, heartens and fortifies us to continue our quest for this most illusive but Divine objective.

Despite many indications of failure and disaster, on balance and over the long term, the barricades of prejudice and selfishness are slowly crumbling and patches of light are beginning to show on the fringe of the horizon.

Both in the international field and in our national area we must accelerate our pace towards this ideal. Let us all more earnestly strive, not only at this Season, but throughout the year to become people of good will in all our human relations.

The members of the Commission and our senior staff all join me in expressing our warmest Yuletide Greetings to all the members of our Hydro family, both provincial and municipal, and to our pensioners. May we each realize the joys and inspiration of the Christmas Festival.

Monstring-

DECEMBER, 1964

ONTARIO HYDRO NEWS

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THE COVER

One of Toronto's main tourist attractions, Ca Loma is shown on our cover in its seasonal gui as a Christmas Fairyland. Proceeds from this uniq project, sponsored by the Canadian Imperial Ba of Commerce, go to charity. The story is told words and pictures by Staff Writer Lois Lane a Photographer Ron Brown, commencing on page 1

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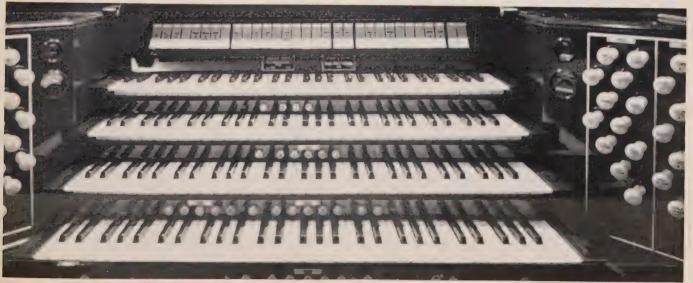
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KING OF INSTRUMENTS

PIPE URBANS



In use since Biblical times, the mighty pipe organ owes much of its latter day development to electricity.

by PAUL WAGNER

Christmas, like other Christian festivals, is almost inseparably associated with the majestic sound of organ music and choral voices raised in song.

It is, after all, only fitting that the mighty chorus of the king of instruments should commemorate the birth of the King of Kings, a tradition that extends back to the early Middle Ages, though with exceptions. To this day, the Greek Church does not permit the use of organs in its services.

The exact origin of the organ is lost in antiquity. Some authorities trace its development right back to the pan pipe mentioned in the Book of Genesis, where it is named along with the harp as one of the oldest musical instruments on record. However justified this hypothesis may be, we certainly have to accept the "Hydraulus", invented around the fourth century B.C., presumably by the Egyptian Ctesibian, as a true predecessor of the modern pipe organ.

Another 2,000 years and the invention of electricity were required to bring it to its present state of perfection.

In the time of Ctesibian "slaves were obliged to pump with all their might to supply air to the pipes of his then highly popular water organ," according to one source. This sometimes grievous arrangement didn't alter much until the 19th century except that the bellows boy took the place of the slaves, and risked only a rap on the head instead of its loss for pumping unsteadily.

The organist, too, had to be a man of considerable brawn as well as musical talent. As the organ remained very rudimentary throughout the Middle Ages, musically as well as mechanically, the organist had to strike huge, oversized keys with his clenched fists in order to play the obstinate instrument. It's hardly surprising that in those days he was called the 'organ beater'.

Even in later centuries, when the keys had reached their present size, the organist could often be seen rising up in the console lurching at the keyboard to attack it with all his might, apparently in a fit of musical frenzy. In truth it was frustration rather than inspiration for a build-up in back pressure of air on the keys made them extremely difficult to depress, as more stops were drawn by the organist to bring out the full power of the organ.

Mechanical difficulties like these imposed severe limitations on the size and playing of organs, which were not completely overcome until the application of electricity, though a big stride was taken with the invention of the pneumatic lever in 1832.

Essentially a small bellows placed under the keys of the organ, the pneumatic lever counteracted the windinduced resistance offered to the organist's fingers by the keys. For mechanical reasons this was feasible only where the distance between the console and the organ — or rather the several organs which make up the grand organ — was reasonably close. The size and arrangement of organs still remained restricted.

This proved a serious disadvantage as most large organs incorporate an echo organ which, for maximum effect, should be placed at the opposite end of a church or auditorium. In most cases, it is also desirable to divide the individual organs on either side of the chancel.

It wasn't until the late 19th century that electricity helped to overcome restrictions on the practical size and placement of organs, and made innovations possible which brought considerable improvements in both their musical and mechanical quality.

A statement made by the British Organ specialist Noel A. Bonavia-Hunt points out how important a part electricity plays in the smooth rendition of a Bach fugue. After saying that "man has evolved the organ after his own image' and comparing its complicated mechanism to that of the human brain and its associated nervous system, he makes this comment: "The introduction of electricity as the motive force, enabling the player to make personal contact with the pipes, affords but a further reason for instituting our comparison, since the nerves of the human body are likewise energized by similar, if minuter, electric charges."

Today nearly all organs are electric and, significantly enough, it was an elec trical engineer Robert Hope-Jones, who introduced many improvements to orgabuilding in the late 19th century. The ranged from electro-mechanical inno vations to tone refinements and general improvements in musical quality, an allowed a greater variety of scales that before.

The electric key action perfected b him still remains one of the best, and exceptionally quick and sensitive i repetition.

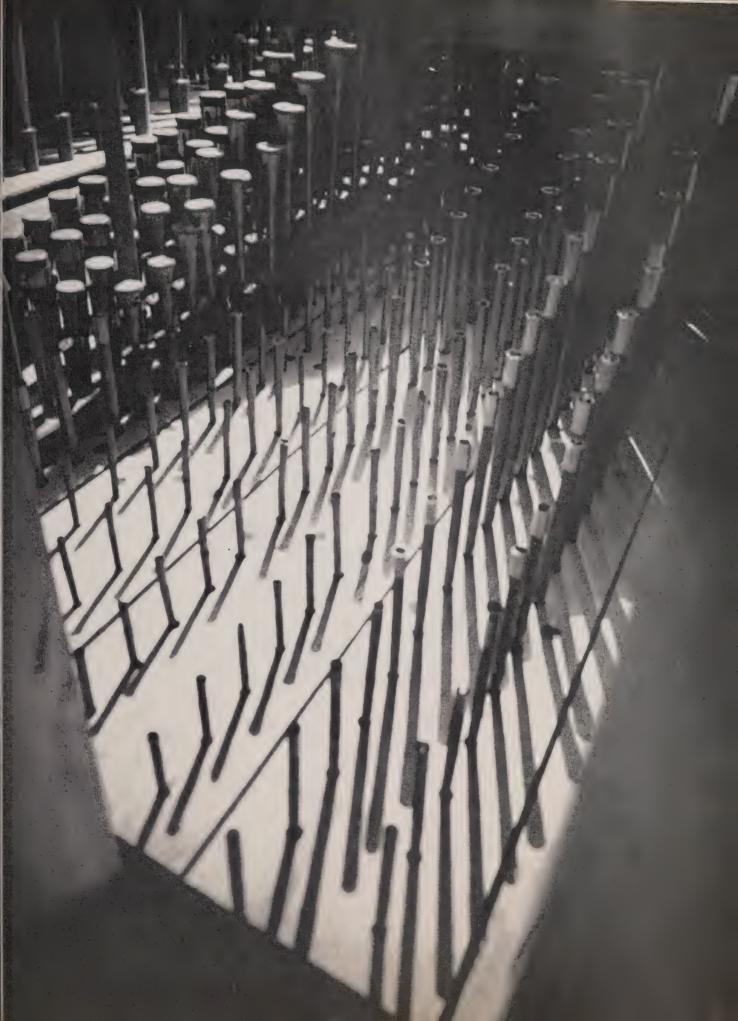
As electric contact is effortless an practically instantaneous, the distance (the console from the organ and plac ment of individual organs is no long restricted.

About the same time, the primitive bellows and the attendant bellows be were supplanted by the considerab more reliable rotary electric fan blowe A tremendous improvement over the u steady gurgle of the noisy water mote an earlier alternative to the bellows bo the electric motor solved the blowing problems by providing a steady, nois free supply of air.

Among the first organ builders to u electricity was a Canadian firm, Casava Freres of St. Hyacinth, Quebec, a cor pany known for the quality of its wor manship throughout the world. One the finest examples of their craft is i stalled in St. Paul's Anglican Church, Toronto.

"It is the largest organ in Canada, a compares favorably with other fine gans throughout the world," commer

Abstract view of organ chamber, Glenview byterian Church, suggests range of pipe





Dr. Charles Peaker, organist and choirmaster at St. Paul's for the last 20 years, who also teaches organ at the Royal Conservatory of Music, and lectures on choral training at Toronto University. "At the time of its installation in 1914," he muses, "it was the 7th largest organ in the world."

This magnificent grand organ comprises nine individual organs with a combined total of 8,000 pipes, the huge Falstaffian basses measuring 32 feet in length. Electro-pneumatic action allowed grouping of the pipes on either side of the altar, with the echo organ placed opposite in the North Gallery.

A great deal of credit for the fine sound of the organ is due to this par-

ticular arrangement, which eliminates the need for organ chambers. Comments Dr. Peaker: "The organ stands in the open and it speaks into a vast nave."

Frequent tuning, of course, is necessary. St. Paul's organ is tuned once a week, as even moderate changes in temperature and humidity will affect its tone.

Another Toronto church, the Glenview Presbyterian Church, has turned to electric heating in order to maintain constant and correct temperatures in the two large chambers of its fine Casavant organ. Baseboard heating units maintain the desired temperatures continuously, even though the heating in the rest of the church is turned down during the week.

Dr. Charles Peaker is shown, above, at the console of magnificent organ in St. Paul Anglican Church, Toronto. Instrument has 8,000 pipes. Electric heating helps main tain correct temperature in chambers of organ, right, in Glenview Presbyterian Church

Comments Henry Rosevear, Glenvier organist, "It is remarkable how well thi instrument has kept in tune despite var. ation in temperatures elsewhere in the church."

A rich literature of Christmas musi has been written especially for the orgat and this Christmas, like many before, it many voices will speak out all over the world to tell of the joy of Christmas, to peace on earth and good will to a men.



ELECTRONIC ORGANS

Spurned by traditionalists ever since its invention in 1935, the electronic organ finally came of age last year when its sonorous tones embellished the Christmas service at historic Canterbury Cathedral in England.

This year, in North America alone 40,000 electronic organs will provide the musical accompaniment to Christmas services held in churches of various denominations across the continent. Many thousands more will be played in private homes with families grouped around them singing carols.

Whether you fancy Bach's mighty Christmas Oratorio, a quiet carol, or a jazzy version of Rudolph The Red-Nosed Reindeer, you can play it on the electronic organ of your choice. What's more, or so the makers claim, you'll be able to play it passably in an amazingly short time.

Undoubtedly the traditionalist has a valid point when he claims that the electronic instrument cannot match the beauty and majesty of the grand organ, but let it also be said that the electronic organ is considerably more compact and versatile. It can handle melodies in the popular or jazz idiom with equal ease as more traditional secular or sacred music.

To the manufacturers, of course, only the cash register bells ring out more sweetly than the carillon tones of their organs.

As far back as 1958, sales of these electronic instruments in the United States reached \$100 million and that is only a start. Market saturation has only reached an estimated 21/2 % per cent in the United States and 11/2 % per cent in Canada.

A completely self-contained spinet-sized organ with two key-boards and 13-note pedal boards costs from about \$1,300 to \$2,100. Larger console models cost up to \$4,000. Concert hall and church models run to about \$20,000. Surprisingly, over 80 per cent of sales are made to homes, the rest go to churches, concert halls and similar institutions.

Ease of learning is one sales tool played up by the manufacturers of electronic organs. Because these instruments sound a note which is sustained as long as the key remains depressed, the player has time to find the next key without seeming to falter. He can also increase or decrease the volume of the sustained note with the expression pedal, or voice it (give it tone color) as he pulls the drawbars. Played as badly, a piano would give the amateur away at once.

Size, of course, is all in favor of the electronic instrument and installation is no problem. Plug it in and it's ready to play. Unheralded and unsung — the Ontario Government's apprentice training program

continues to turn out that most valuable of commodities — the skilled tradesman.





by LES DOBSON

Did you ever go into a really good restaurant and wonder where the chef ever learned to turn out such lobster Newburg at the same time he was adding the finishing touches to a dozen other dishes?

Or have you pondered the source of your barber's skill as his judicious snipping gradually brought your ears back into view?

The next time you take over as sidewalk superintendent at a construction project — think for a moment about the training behind the bricklayers, carpenters and plumbers. And give a thought to the dexterity required by the watchmaker, paperhanger and auto mechanic.

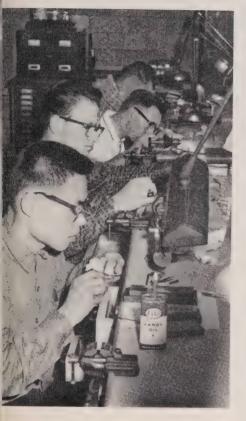
They obviously did not learn their

jobs at high school; no university grant a Ph.D. in hairdressing; and most of these trades are not taught in technica schools.

The answer, of course, is the Apprenticeship Branch of the Ontario Government's Department of Labor, under whose auspices some 120 trade programs are conducted. They run the alphabetica gamut from aviation mechanics to wood working.

How do they operate? Well, let's ge back to the lobster Newburg.

Having established to his own satisfaction that the academic life is not for him, and with some conviction that the preparation of food for others is a pleasIttention in these photos is focussed on whiskrs and roast beef, watches and drain pipes— Il involved in the valuable vocations being tudied at the Provincial Institute of Trades.







way to earn a livelihood, the embryo ok must then persuade someone to ploy him in a kitchen or dining room. next step is to register with the prenticeship Branch of Ontario's Detment of Labor.

With the legal niceties out of the way, settles down under a three-year conet to a demanding schedule of school on-the-job training. The first year s for five months of basic training at rovincial institute of trades and the 1 year includes a short advanced rse to complete his training.

At the institute in Toronto, for inice, he will join about 60 trainees in a spotless, well-equipped kitchen

he will learn French cuisine and other nuances of the trade. On the theory that it takes more than cooking to get by in the competitive field of food preparation, such subjects as mathematics, English and bookkeeping have been included in his curriculum. And he will be paid while he learns.

So much stress is laid on the practical aspects of cooking that even the digestion of the staff and other students is considered to be secondary—their meals are prepared by these chefs-in-themaking! After basic training, the cooks return to their various hotels, restaurants, hospitals and other establishments.

Ontario's apprenticeship program is

run by the Apprenticeship Branch in conjunction with the Department of Education and, to enter, trainees must be over 16 years of age and have at least Grade 10 or equivalent education. Trades fall into two main groups—those where a certificate is required before the individual can practice, and those in which a certificate can be acquired but is not compulsory.

Some indication of the new emphasis being placed on apprenticeship training and the increasingly important role this fourth dimension in education is coming to play in the economy of the province is apparent in the statistics. Although the program began in 1928, there were only

With more than 10,000 registered apprentices presently in training, Ontario accounts for about half of the Canadian total. Bricklaying and decorating are trades being practised here.





1,421 apprentices registered in Ontario by 1939. To date, a total of more than 40,000 have registered. This fall, Alan Thorpe, 21, a Grade 12 graduate from St. Catharines who wants to be an electrician, became the 10,000th apprentice in active training in the province.

By the end of the fiscal year 14,000 apprentices are expected to be in training in Ontario. This is a 50 per cent increase over the previous 12 months and it represents approximately half of all registered apprentices in training in Can-

How do they account for the resurgence of a system of training which traces its origins back to the Middle Ages?

D. C. McNeill, director of the Apprenticeship Branch, credits much of the new interest to progress in the field of science. It is becoming ever more apparent, he says, that unemployment problems in this technological age are due to a lack of skilled workers rather than a shortage of work. He is not too worried about automation which he feels is creating many skilled jobs.

"Success in our fast-growing apprenticeship training program will depend, ultimately, upon the co-operation we receive from industry," Mr. McNeill emphasizes, and in this regard he is cautiously optimistic.

"I think that the importance of train-

ing skilled workers in Canada is becom ing obvious," he says, "and interest ir our program is mounting quickly. Or the other hand, a recent survey suggested that many employers were scarcely a ware of our activities. The Departmen is now making a concentrated effort to contact such firms and acquaint then with the benefits they can expect from participation."

Mr. McNeill might have added tha everybody benefits - by reduced unemployment, better products and improved

And this brings us back to the very be ginning - lobster Newburg fit for a



some thoughts on FLEET MAINTENANCE

by MICHAEL SULLIVAN

Ontario Hydro's transport fleet has reached for the moon — and overshot the mark by many millions of miles. Last year it travelled 19,000,000 miles, enough to get to the moon and back about 36 times.

Aiming high at cutting what was already about the lowest cost-per-mile record of any utility in North America, the fleet maintenance people have succeeded in cutting Regional vehicle repair costs from 5.4 cents per mile to 4.8 cents over the last three years. And they did it, for the most part, by promoting good driver practices and systematic preventive maintenance.

Basically, this means sticking closely to instructions published in Ontario Hydro's "Driver's Handbook for Vehicle Operation and Maintenance," and persistance in carrying out daily "circle checks" of each vehicle.

The men at the A. W. Manby Service





Centre work out maintenance schedules and then spread the gospel in the field. As E. J. Finucan, transport engineer, puts it: "We can sit back here and talk until we're blue in the face and it won't help a bit if the men who use the equipment do not take proper care of it." Fortunately, the field men, under a handful of fleet supervisors, are doing a job. As Mr. Finucan points out, "the fleet is getting more and more complex all the time, while repair costs continue to drop."

The Hydro fleet includes some 4,000 pieces of equipment ranging from the ubiquitous and minute Volkswagen to massive revolver cranes weighing 150 tons. Original cost of this equipment is in the vicinity of \$21,000,000.

"Without a good preventive maintenance program, you're running a breakdown system", says Don MacKenzie, transport and work equipment manager, "and in the long run you lose money on repairs and job delays."

Among the subjects currently being studied intensively by Hydro, are cold weather starting and maintenance. Much of the intricate equipment used on construction projects is not obtainable in Canada and neither is it designed for the extreme cold experienced in such regions as the James Bay watershed.

"In fact", says Mr. MacKenzie, "they must figure that when the temperature hits zero, everyone stops work."

At the present time, the Research Division is drawing up a report of tests recently carried out by Hydro in cooperation with Ottawa's National Research Council at 50 degrees below zero. Some of the finds are already being put into practice.

Now, before each major piece of work equipment heads for the north, its "innards" are altered and re-assembled in

accordance with new cold weather procedures.

Heaters are put into oil pans ar water systems. Ordinary rubber hos are replaced with ones of synthetic rubber, reinforced with fabric and wibraid, which will withstand temperatur of 60 below zero.

Because most standard automotivire insulation either cracks or bread off at sub-zero temperatures, only specilow-temperature polyvinyl insulated with is installed at Central Shops.

Another interesting tidbit gleaned fro the Ottawa experiments is that enginoil cannot be drained at very cold we ther if any kind of extension pipe is required for the operation. Even who drained from a hot engine, the oil solic fies almost instantly on contact with the pipe. It is general practice at Hydrobring engines up to operating temperatures before draining so that accum



Hydro's fleet maintenance people believe a penny of prevention can save pounds in repair.

ed contaminates flow out with the oil. Even a crowbar will not turn a bearpacked in normal grease when the perature is in the neighborhood of below zero and to attempt to do so h mechanical power is asking for able. Only lubricants, fluid at minimum t-up temperatures, are used on Hydro icles in the north.

On the subject of lubrication, Wilf on, preventive maintenance technin, says that the frequency of servicing lubrication is more important than type of oil used. At Hydro, as the reof extensive laboratory tests, they tinue to change oil at 1,000-mile inals, except where ideal operating peratures prevail. No additives are I because the oils purchased meet I specifications and contain all the edients necessary for engine protector. Mr. Saxon is presently working out ication guides for major equipment

used by the Commission.

Undercoating is another form of protection which has been studied very closely at Hydro and as a result "rust-proofing" has replaced undercoating in the maintenance vocabulary. A new type of petroleum-based wax protective coating has been adopted but its application is not limited to the underside of a vehicle.

"We protect anything that may rust from the inside", says Mr. Finucan, "door parts, rocker panels and any hidden crevices or corners. A good part of body deterioration results from moisture trapped inside and it breaks your heart to have to get rid of a car because it's ruined by rust when it is still in good mechanical condition."

His sentiments on corrosion are echoed by Alex DeMaio, manager of the A. W. Manby Service Centre. "Hydro has proved that putting vehicles into a heated garage doesn't help any", he says, "it just hastens corrosion. When utilities first started using motor transport it was traditional to keep it under cover — just like keeping a horse and buggy in a shed.

"And in those days you could never get the darn trucks to start," he adds. "With the advanced equipment of today, you don't need garages. They just add to your overhead. Most of our fleet is housed outside,

Not one to keep secrets, Mr. DeMaio is anxious to share the wealth of vehicle maintenance knowledge, which has been accumulated at the Manby centre, with utility fleet managers across the province.

As he explains: "It costs money to save money through systematic research and maintenance. The more people who make use of it — the greater the saving."



Christmas Castle

electricity gives it life

Castles, children and Christmas go handin-hand in Toronto where fabulous Casa Loma is again a twinkling, colorful yuletide beacon, luring young and old alike to its dazzling Christmas Fairyland.

Last Christmas this magical transformation of Sir Henry Pellatt's 98-room "white elephant" drew more than 300,000 visitors, the majority of whom were children. And this year the theme is being repeated, with the proceeds again going to the Kiwanis Club of West Toronto for its many charities.

Fairyland is a child's fantasy of huge, richly panelled rooms overflowing with 20,000 toys, which have been donated by various manufacturers. Most of them are distributed to needy children in time for Christmas.

There are animated dolls and stuffed animals to delight the girls, while racing cars and an electric train, unconfined on some 1,000 feet of track, entrance the

boys. Stiff toy soldiers and rumbling toy tanks, miniature robots and motorized construction sets are all on display in settings of holly, ribbon and pine boughs. Cost of the decorations, including the lighting, is estimated at \$65,000.

There's even Sleeping Beauty and a fairy princess and of course Santa, surrounded by scenes depicting the Twelve Days of Christmas.

In the Great Hall, sweeping red bunting and a huge decorated chandelier stretch the length of the ceiling. At one end of the hall, Jack climbs a 30 foot leafy beanstalk to meet the giant, while over the mezzanine, Wynken, Blynken and Nod sail through a sea of stars.

Another outstanding display centres around tiny plastic blocks fashioned into replicas of Cologne Cathedral and the New York Empire State building. Crystalline blocks were also used in the construction of a glittering medieval castle.

Each room's mood has been set by subtle indirect lighting. The entrance to the Enchanted Forest becomes mysterious with the aid of ultra-violet "blac light which causes phosphorous paint glow in the dark, deadening all oth color. In the forest, paper-mache treatistically spotted with phosphorous seem to loom out so that the backgroun appears almost hazy.

The Fairy Princess' Room, on tother hand, painted a stark white, softened by pale blue flood lights. One the most attractive effects, created multi-colored spot lights and mirrors, achieved in Peacock Alley where to ceiling reflects a stained glass impression.

Lighting the interior and exterior the huge castle was a major feat f York Electric, who installed some 8,0 lights, ranging from seven to 1,000 wat over a two-month preparation period.

Gold, green and red flood lights litt ally bathe the outside walls, courts, g leries and towers, making the castle visible landmark for miles around t city. To achieve the twinkling effect the windows, each opening was cover with tinfoil. In rooms where it was no



Christmas Fairyland is living up to its name if the photographic studies on these pages are any criterion. Proceeds from the event, which is sponsored by the Canadian Imperial Bank of Commerce, go to charities.

essary to have daylight, the panes were frosted with a special spray. Flood lights placed on the ledges, are directed up on the panes.

The castle's surrounding wall, which was estimated to cost \$250,000 when built by Scottish stonemasons 50 years ago, is highlighted by old English coach lanterns and six-foot wooden soldiers. The lanterns are connected to Toronto Hydro's street lighting system and are automatically controlled by photo-electric cell. Last year, some 35,400 killowatthours were consumed in the two-month Fairyland presentation.

Additional wiring for the castle, which has an 800 ampere capacity, was not difficult to install due to the foresight of Sir Henry, an early advocate of private power development at Niagara Falls and one of the originators of the Toronto Electric Light Company and the Toronto Street Railway. Sir Henry provided a crawl space between the ceiling of the first floor and the second floor where it was possible to run supplementary wiring, and the turrets were serviced by running lines up an unused elevator shaft.

Built and furnished at a cost of \$3,000,000, Casa Loma incorporates some of the finest features of European castle design and was the home of Sir Henry Pellatt until his wife's death in 1924. After he moved to his country estate at King, Ontario, the castle, proving unsuccessful as a hotel, remained empty and forlorn for 12 years. During this period it was taken over by the City of Toronto.

The Kiwanis Club of West Toronto leased the castle from the city in 1937 and restored it as a tourist attraction. Now, guided tours and weekend dances make the walls resound with the laughter and gaiety it once knew for there was a time when the Pellatts would think nothing of inviting a military regiment up for the week-end.

The Castle was built to provide fitting hospitality to visiting royalty and it was proposed at one time that it become a military museum. But Sir Henry hoped that it would eventually serve some other useful purpose for the people of Toronto.

Somehow, the faces of the children as they wander through Christmas Fairyland, suggest that his dreams have come true.







Even in this practical age it is doubtful if the steady glow of an electric light will ever entirely replace the gentle flickering of a tall taper for those special festive occasions such as Christmas.

And the home-made candle's popularity is on the rise again, as witnessed by the attractive display prepared this year by the Candle Making Institute at Casa Loma's Fairyland. To make candles at home all one needs is paraffin, wicks, moulds, a book of directions, a stove and a bit of ingenuity. Moulds can be almost anything from milk cartons and refrigerator containers to tin cans and pottery.

But there was a time when candle-making was the art of a few, and candles were the sole source of household light. Candles, made of tallow came into their own in the 16th century. Beeswax tapers were used exclusively by churches. In early manuscripts there are references to monasteries saving kitchen fat for making every-day candles. The tallow would be melted, and strained. Then flax or cotton fibres would be repeatedly dipped until coated thickly enough for use.

Later, candle making guilds sprang up in both Europe and Britain. The English chandler guilds kept an eye on their members to ensure certain standards, and adulteration of wax was a punishable offence.

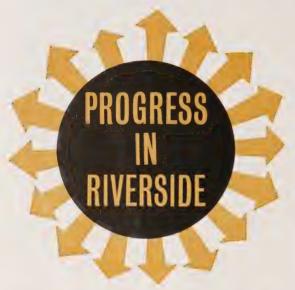
Plebian tallow candles remained popular in England until the late 19th century. However, colonial Americans discovered that the waxy fruit of the bayberry bush, found growing along the Atlantic coast, produced a practical as well as a sweet smelling candle.

The first major variation from tallow came with the whaling industry. Spermaceti, a crystalline substance from the head of the sperm whale, was found to make a candle that would double the light radiated by tallow.

Then in 1850, paraffin, a by-product of petroleum was discovered. Paraffin, a mixture of solid hydro-carbons, is the basis of all commerical candle making today. Stearic acid is added to paraffin to increase rigidity and decrease brittleness. And to ensure complete combustion, modern candle wicks are chemically treated.

But the fun of candles is not in the buying, - it's in the creation. One word of warning: when your work of art is weaving its warm, mellow spell over the Christmas table, have Dad carve the turkey in the kitchen . . . before he yells for more light on the subject.









Cutting the ribbon at Riverside opening ceremonies, Ontario Hydro Chairman W. Ross Strike is flanked by R. C. Mott, PUC chairman, left, and Mayor G. R. Stewart.

Detroit River town opens \$130,000 office and service centre

by PAUL CHISHOLM

In the rip-roaring days of U.S. prohibition, the road that ran through the tiny community of Riverside, five miles northeast of Windsor, was renowned for the booze palaces which sprang up on the otherwise placid rural scene. In these establishments, thirsty Detroiters could gaze fondly across the river at their hometown, through up-turned glasses.

Riverside endured another unwelcome period of notoriety in the 1930s when Chicago gangland fugitives "holed-up" in the area on occasions when things became too hot for them across the border.

Exciting as both eras sound, Riverside remained essentially an orderly farming community and it stayed that way almost to the end of World War II.

Today Riverside is a thriving residential town whose borders have become virtually undistinguishable from those of Windsor. And it is interesting to note that French-speaking residents outnumbered English-speaking citizens as recently as 1945 when the population was approximately 6,000. Present population is close to 20,000 and English predominates.





Overhead heaters at impressive entrance of Riverside PUC building, far left, prevent cold blasts from entering. The spacious, well lighted business office, centre, includes display area off main entrance. While camera records event, Mr. Strike congratulates D. D. MacKenzie, PUC manager, in his office, above. Art Baillargeon, superintendent, is at left.

But town planners foresee an eventual pulation of 40,000, and the Riverside blic Utilities Commission is one agency ich is prepared to meet the expanding eds of the area without sacrificing vice. This was ensured with the openof a \$130,000 office and service tre in November.

With a gleaming facade of glass set in ontemporary design of brick, the new lding incorporates the remodelled old arters used by the commission since 10. Total floor space is increased two-l-a-half times to approximately 12,000 are feet.

Panels of oak framed in white give a and attractive background to the eral offices and display area. The me is reversed for the counters which stark white accented with strips of brown oak.

wo adjoining executive offices also e oak panelling. The rooms are seped by a sliding partition and when is removed the entire area doubles as a board room.

Iodern workshops and staff rooms located at the rear of the building,

along with warehouses space and an area for minor servicing of vehicles. A courtyard enclosed by an ornamental block fence is used for parking.

The building uses electricity for heating and cooling as well as lighting. Office areas are air conditioned and heated by a 10-ton capacity heat pump supplemented by 30 kilowatts of resistance heating.

During the opening ceremony, the 42-year history of Hydro in Riverside was briefly outlined by Roland C. Mott, PUC chairman. The system was operated by Walkerville Hydro until 1936 when Walkerville amalgamated with the city of Windsor. Riverside then opened its own office and service centre with a staff of four.

The present headquarters site, formerly a garage, was bought in 1940 and converted into offices. Seven years later the Riverside system was re-organized as a public utilities commission which is also responsible for the water supply.

Riverside Hydro had 302 customers in 1922 and the number has grown to nearly 6,000 today. Average monthly use per

residential customer has increased during the period from 90-kilowatt-hours to 376 while cost has decreased from 2.7 cents per kilowatt-hour to 1.35 cents.

Mr. Mott said that construction had been delayed as long as possible to enable the PUC to build up its reserves. "There will be no increase in Hydro or water rates as a result of the new building," he declared.

Ontario Hydro Chairman W. Ross Strike used an electric carving knife to sever the ribbon strung across the foyer. He said the new building was a good indication of an efficient operation and he felt that improvement to the morale of both staff and customers resulted from the use of modern facilities.

With less than 10 per cent of its sales classed as industrial, Riverside PUC has done a noteworthy job in keeping its rates among the lowest in the area. And it is particularly proud of its success in promoting electric heating.

There are more than 400 electrically-heated apartment suites in the Western Region and over half of these are in Riverside.

HYDRO COMMISSIONERS ON THE JOB

DISTRICT 4 ANNUAL MEETING

Resolutions highlight well-attended OMEA sessions at Toronto

Subjects ranging from marketing to museums and from labor relations to the new commissioner's handbook were discussed at the annual meeting of District 4 OMEA, but the essence of the conference was to be found, perhaps, in the session on resolutions.

As the result of one, District 4 will hold no annual meeting in 1965. Delegates were asked by the Nominating Committee to consider holding the election of officers after the conclusion of the various municipal elections, which are usually held in December, because in the past, some elected to District 4 offices had been defeated shortly afterwards at the municipal polls.

To overcome this situation, it was agreed that the annual meeting of the District would henceforth be held in the second week in January, commencing in 1966.

After some discussion, it was agreed to pass on to the parent association a resolution seeking legislation to enable utilities to enforce payment of accounts from consumers residing or carrying on business in another municipality.

Unpaid bills were the subject of another resolution endorsed by the meeting and submitted by Toronto Township Hydro. It called for the appointment of a District 4 committee to study ways by which the commissions might encourage customers moving from one area to another to maintain good credit standing. The preamble to the resolution pointed out that a significant loss was sustained each year across the province by customers leaving one municipality with unpaid bills and obtaining service in another.

A resolution submitted by Aurora Hydro suggested that Ontario Hydro reconsider its recent decision to discontinue the payment of a commission to authorized agents for collecting rural accounts.

Commenting on the resolution after the meeting, an Ontario Hydro representative noted that most service organizations, including many municipal electric utilities in Ontario, have the customer pay the collection charge when the bill is paid elsewhere than at the office.

New Toronto PUC originated a resolution, supported by the delegates unanimously, opposing a recommendation of the Select Committee on the Municipal Act that the functions of the public utilities commissions be performed by a committee of council.

In the light of the resolution that the Annual Meeting and election would henceforth be held in January, the entire 1963-64 slate was returned to office. W. J. Fisher of

LABOR RELATIONS THEME OF DISTRICT 4 SPEAKER

C. B. C. Scott calls for understanding and co-operation in the field of labor-management relations

In a wide-ranging address covering many aspects of the labor relations front, C. B. C. Scott, Ontario Hydro's assistant general manager, Personnel, reviewed the advisory services which have been set up by the Commission at the request of the OMEA and the AMEU.

Speaking to the annual meeting of District 4. Mr. Scott urged the utilities to take full advantage of these services which, he said, in the last six years had included labor relations training and orientation program for AMEU managers, regular newsletters, and wage and salary surveys which were circulated among 119 participating municipal utilities. In terms of work load, the greatest service provided under the program was individual labor relations assistance to any utility seeking it.

He said a survey had also been completed which provided the same 119 utilities with accurate cost estimates of "so-called nonmonetary benefits". The average cost of these benefits at the time of the last survey, in 1962, was 75 cents, he said, or 30.1 per cent of the average hourly rate.

On the subject of automation, Mr. Scott believed that the answer to these problems could only be found in the capacity of the parties concerned to work together, to understand each other, and to work through to a mutually beneficial solution.

He cautioned, however, against "overplaying" the acceleration that has taken place in mechanization.

"As I have said, we should make plans for it and we should endeavour to make the impact of it as painless as possible. On the other hand, we should not stir up fear amongst our citizens that there are going to be only a handful of jobs left in the future and that mechanization will take care of everything."

Speaking of negotiations, Mr. Scott advised commissioners against seating themselves at the bargaining table. "You are most heavily involved," he said, "but this involvement should be at a policy level, a decision level, a command level removed from the heat and fray of the bargaining table."

Continuing his theme, the speaker said:

"The union always tells us that any position reached at the bargaining table is subject to acceptance or non-acceptance by the members of the union local. A management bargaining team effectively uses the same technique—it tells the union that any position reached is also subject to acceptance or rejection by the commission." He said this procedure permits final decisions to be reached in a calm, logical manner at a commission meeting removed from the stress and pressure of the bargaining table.

Mr. Scott warned that Hydro utilities were

HYDRO CHAIRMAN CALLS FOR TEAMWORK

Close scrutiny of utility operations suggested in the interests of efficiency Power consumption in southwestern Ontario has increased 110 per cent during the past 10 years, it was reported to the annual meetings of OMEA Districts 7 and 8.

Gordon McHenry, manager of Ontario Hydro's Western Region, said that peak demand rose from 327,000 kilowatts in 1953 to 688,000 kilowatts last year.

Despite annexation of part of the Niagara Region there had been a 20 per cent reduc tion in Western Region staff during the period he revealed, due to new and improved tech

.oad building, commissioner education and public relations continued to dominate discussions
s the annual fall district meetings of the Ontario Municipal Electric Association came to an end across the province.
Some of their deliberations are recounted on these pages.

lew Toronto is president while J. T. Armtrong, Georgetown, and A. K. Meen, North ork, continue as vice-presidents,

Association members were brought up to ate on the progress of Ontario Hydro's colection of historic electrical items by Lt. Col. A. Kennedy. Acquisition and cataloguing were well advanced, he said, "and we now ave as good a collection as any of its kind in the continent." He said that only a few hore items were required in order to tell the complete story" and that the next step was a determine exactly what form the presentation should take.

He was unable to say to what extent Hyro's efforts to preserve the past might be ed in with the Centennial Centre of Science nd Technology being developed by the Onario government.

In describing the commissioner's handbook eing prepared at the request of association members, E. C. Dash, past president of the OMEA, used strong terms in urging delegates to make use of its contents. "Unless you study this booklet and put it to use," he said, "you have no right to let your names stand in the elections which are forthcoming."

Guest speaker W. Ross Strike commended District 4 for its successful load-building efforts in the face of keen competition and problems inherent in a rapidly expanding, high-density area. "You have striven for uniformity in your load building programs," he said, "and I hope this approach rubs off on the rest of us."

The Hydro chairman urged the commissioners to provide every opportunity for management and staff to participate in AMEU activities. "You will have a better staff," he said, "if you let them get out and see what's going on in other municipalities." He also suggested closer liaison with the regional organization in order to get the "fully rounded picture."



Chatting between sessions at the District 4 annual meeting, left to right, are: H. F. Bush, Mimico PUC; A. (Scotty) Hamilton, Forest Hill Hydro; and W. Ross Strike, chairman of Ontario Hydro, guest speaker.

danger of outstripping the rest of the comunity in wages and benefits paid their emloyees, and this posed a real danger. "We must stay within the wage and benefit

"We must stay within the wage and benefit attern established by the private enterprise ector of our economy," Mr. Scott told the reeting. "The electric power industry in Onario is a public monopoly. If our scale of age rates and benefits is allowed to outstrip the wages and benefits of other employers in the community who do not enjoy the fruits of conopolism, we will get a strong reaction. There is already a groundswell of reaction it is."

Mr. Scott concluded his remarks with a lea for greater co-ordination of labor retions in OMEA-AMEU Hydro utilities. "If we re to remain within the permissible bounaries of our economy we must get together and co-ordinate our efforts in negotiations to greater degree than we have in the past. e, at Ontario Hydro, would be most intersted to hear your proposals about how this p-ordination can be effected."



Full slate of District 4 officers was returned for a second term. Shown in the photograph, left to right, front row, are: John McMechan, Toronto, past president; W. J. Fisher, New Toronto, president; and J. T. Armstrong, Georgetown, 1st vice-president. Back row: D. H. Glass, Aurora, commissioner; A. E. Meen, North York, 2nd vice-president; Elmer Archdekin, Brampton, commissioner; and J. C. Ramsay, Toronto, secretary-treasurer.

ques and equipment and because there was ss new construction. These factors had also mabled Hydro to hold costs in line in the ce of wage increases on the order of 40 or cent during the 10 years.

Mr. McHenry said that effective selling was

the answer to the utilities' problem of avoiding rate increases. He revealed that electric heating would be installed in an estimated 840 homes in Western Ontario this year, compared to 175 during 1960. Electric heating was making similar gains in the commercial

field and acceptance of electric water heaters was equally encouraging.

In another address presented at both conventions, W. Ross Strike, chairman of Ontario Hydro, called for more teamwork by utilities to give customers the service to which they

were entitled. He said a great deal of teamwork was evident in the reaction by utilities to the Select Committee's recommendations that the function of Hydro commissions be taken over by municipal councils. But he emphasized the need to create an improved public image in order to survive. "We have a public relations job to do," he said, "and we must recreate in the minds of our people the importance of the public utilities commissions and the service they are rendering".

Mr. Strike urged commissioners to take an objective look at their utilities and suggested several areas where close scrutiny might be

beneficial. Among them:

Meetings: Keep agendas up to date, they may be the same as they were 25 years ago. Some subjects unheard of 10 years ago should be receiving top attention today.

Staff: Don't overlook staff as important members of the Hydro team. Keep them informed of affairs and make sure they are active in the AMEU.

Regional Relations: Make extensive use of regional offices. Regional personnel at times may wish to attend your meetings, but may only do so by invitation.

Marketing: Every commissioner has a responsibility to keep abreast of the latest approaches and trends.

Public Relations: Members of the public should be kept informed of the affairs of their utility and aware of its problems. In preserving the principle of keeping revenue-producing and tax-revenue public services separate, steps should be taken to ensure that the public fully understands the reasons. Otherwise, the public can be easily misled and inefficient operation of these services result.

DISTRICT 8 MEETS AT ST. CLAIR BEACH

Commissioner's handbook outlined by D. P. CLIFF

Sales and marketing were recurring themes at the District 8 OMEA annual meeting at St. Clair Beach, which was attended by more than 100 delegates.

Reporting to the conference on the various aspects of 1965's promotional program, Bill Palmateer, Ontario Hydro's manager of Advertising and Marketing, said that efforts would be continued to correct the mistaken impression in the minds of some members of the public that electric heating was expensive. A sound marketing approach was essential at all levels, if Hydro was not to be stripped of the market it has counted on and invested in, he said. The alternative was higher rates.

Mr. Palmateer outlined the methods and media for reaching the various publics of Ontario and said that although the needs of

municipal utilities vary, Hydro endeavours to provide "umbrella support" for all.

Outlining the format of the new Commissioner's Handbook, which is now in production, D. P. Cliff, secretary-treasurer of the OMEA, said that its purpose was to make everyone more knowledgeable about Hydro in general.

"Every effort is being made to maintain reader interest, and dull statistics will be kept to a minimum," he said. "To veteran commissioners some of the contents may appear old hat, but please remember the need to inform younger utility commissioners who are coming forward each year.

"This year, for instance, 229 new commissioners are serving for the first time. Commissioners change at the rate of between 200 and 250 annually, which amounts to a complete change of commissioners in the province approximately every six years.

"Electrical terms will be couched in layman's language and throughout the pages of the handbook the new commissioners will be reminded of the importance of their task and their heritage. To all commissioners the handbook will serve as a guide that all may give of their best to the Hydro function."

Bringing delegates up to date on the activities of the AMEU, J. W. Hammond, president, revealed that his association and the OMEA were considering a memorial to past presidents of the two associations. The memorial would be part of a Centennial project.

The meeting strongly opposed a recommendation by a Select Committee of the Ontario Legislature which would have the functions of Hydro commissions taken over by municipal councils. Without dissent, it endorsed a resolution to the OMEA executive which described the committee's proposal as "a retrograde step in municipal government."

Named president of District 8 was F. G. Tigwell, Point Edward. M. J. Brian, Windsor, was elected 1st vice-president and Roy Warwick, Blenheim, 2nd vice-president.

Tilbury will be the location of the 1965 conference of District 8.

AYLMER HOSTS DISTRICT 7

Meeting urges a co-operative training program for utility staffs

A co-ordinated training program for utility office staff was one of the recommendations made by the annual meeting of District 7, OMEA, at Aylmer. The more than 80 delegates present endorsed a resolution urging OMEA, AMEU and Ontario Hydro to initiate such a program.

Proper training of personnel was necessary, it was stated, because utility office procedures differ from all others and because of the present shortage of suitably trained staff.

Other topics dealt with at the conference ranged from marketing and advertising to

sales promotion and administration.

Culminating a lengthy debate on the Select Committee's recommendation that the function of public utilities be performed by municipal councils, the meeting unanimously passed a protesting resolution to be forwarded to all members of the Legislature representing ridings within District 7. It described the recommendation as "a retrograde step which would lead to poor service and higher rates".

Judge Campbell Calder, of London, warned the meeting that even if the committee's recommendation was turned down, the proposal would likely come up again from another quarter, just as it has done in the past. He suggested that there was a "stream of thought" in the Legislature that power at cost was not necessarily the right thing, and predicted that in time the proposal would resurge.

"If we were councillors wouldn't we be reaching anywhere to relieve the pressing taxes on real estate?" he asked.

In his message calling for more uniform policies in marketing and operation, OMEA president John McMechan urged commissioners to use to the full the knowledge and services which are available from the Electric Service League, the Electric Heating Association and Ontario Hydro.

A meeting highlight, the election of officers, saw W. C. Pearson, Strathroy, named president. L. W. Smith, Tillsonburg and R. G. Campbell, Embro, were elected first and second vice-presidents respectively.

D. P. Cliff, secretary-treasurer of the OMEA congratulated the district on attaining 100 per cent municipality membership this year Only three other districts (9, 8 and 3), have the same representation, he said.





Registering at the District 8 convention at St. Clair Beach is C. L. Leach of Chatham. D. P. Cliff, association secretary, is next in line.

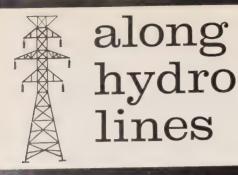
Executive, left, was elected by District 8. Clockwise, are: F. G. Tigwel, Point Edward, president; M. J. Brian, Windsor, 1st vice-president; Roy Warwick, Blenheim, 2nd vice-president; John Bannister, Point Edward, secretary-treasurer; Edmund Cecile, Riverside; J. T. Barnes, Sarnia and A. E. Stirling, Chatham — directors; L. F. Duby, Amherstburg, past-president.



District 7 was congratulated on obtaining 100 pertent municipal membership. Shown here are the telegates from Belmont PUC. From the left are Commissioner Kenneth Godsoe, Reeve Nelson Clarke and Douglas Layfield, secretary-treasurer.



This is the executive elected at the District 7 meeting. Left to right, front row: L. W. Smith, Tillsonburg, 1st vice-president; W. C. Pearson, Strathroy, president; R. S. Sheppard, Aylmer, past-president. Standing: David Rolston, Strathroy, secretary-treasurer; H. R. Henderson, Woodstock, director; R. G. Campbell, Embro, 2nd vice-president; and P. R. Locke, St. Thomas, director.



Hydro Executive dies



W. H. (Bill) Edwards, a senior executive of Ontario Hydro, and well known among the electrical utilities of the province, died last month in Toronto after a long illness. He was 57.

Mr. Edwards, who had served as administrative director - regions, since 1961, was formerly manager of West Central Region at Hamilton.

A native of Grey County, Mr.

Edwards joined Hydro as a student in 1926 and full-time in 1929 when he graduated from the University of Toronto in electrical engineeering.

He served in various posts in the Niagara, Georgian Bay and Belleville districts and in 1957 was named director of the Frequency Standardization Division in Toronto. He became manager of Hydro's West Central Region in 1958, moving to his administrative position in Toronto three years later.

Mr. Edwards was responsible for administration of Hydro's seven regions in the province during a period of reorganization and rapid growth.

Germans Study Hydro



Fourteen German utility officials on an educational tour of North America learned the fundamentals of the Hydro organization in Ontario during a one-day Canadian stopover when they visited the offices of Toronto Hydro. With the aid of an interpreter (girl at left) Harry Hyde, Toronto Hydro manager, explains the system. The delegates were also addressed by Ron Mathieson, manager of

the AMEU, and Bill Palmeteer, Ontario Hydro's manager of Advertising and Marketing. The tour was sponsored by the West German Association of Public Utilities, the equivalent of the AMEU.

Lethal to Lampreys

Ontario Hydro assisted the Fisheries Research Board of Canada in the battle of the lamprey in Northwestern Ontario recently. The flow of the Nipigon River was greatly reduced so that lampricide, a chemical that suffocates the eel, could be added to the water. Lampricide is harmless to humans and game fish, but is 89.9 per cent effective in the destruction of lamprey. The Nipigon is the last major river in this area to be treated in the fight to wipe out this killer of commercial and game

MUNICIPAL BRIEFS

Port Stanley PUC received a resounding vote of confidence from the local ratepayers last month when they rejected a proposal that the commission be abolished and its functions assumed by the Village Council. They voted 724 to 136 against the suggestion in a plebiscite which was held at the request of Council.

When the results of the lopsided, 7-1 vote in favor of retaining the PUC was announced, Chairman Bernard Taylor commented: "I think this indicates that the voters in Port Stanley have more faith in the PUC than does Council I feel that the whole problem came about through poor liaison between Council and the PUC".

Prior to the plebiscite, District 7 of the OMEA ran a large newspaper ad urging voters to support their PUC. Bridlewood subdivision in Scarborough, boasting many allelectric homes, has been cited as one of the finest developments in Ontario by the Urban Development Institute, which presented an award of merit to the subdivider. Electrical service is underground.

Widdifield Township voters go to the polls, December 14, to decide whether or not to purchase the local distribution system from Ontario Hydro. At present, Widdifield is part of the North Bay Rural Operating Area.

S. E. Preston, general manager and secretary of the Kitchener PUC since 1945, died recently. He was 57. A former Ontario Hydro municipal auditor, Mr. Preston joined the Kitchener utility as controller. He was a past president of the Canadian Transit Association and was an executive member at his death.

The Town of Burlington plans to issue debentures totalling \$50,000 for street lighting extension.

Fred Denyes, reeve of the village of Brighton and a commissioner of the Brighton PUC, died recently.

Hayward Best of Sarnia, a first-year student at Queen's University, Kingston, has been awarded the 1964 bursary presented by District 8, OMEA. The \$300 award is made annually to students who wish to further their education in the field of electrical technology at a recognized Ontario university. The award takes into account the financia. needs and scholastic standing of the student, as well as electrical interest.

Electric heating has been installed in 80 per cent of the new homes built in New Hamburg this year. Twelve new homes and two conversion dwellings now have this typo of installation due to the campaigning of the New Hamburg PUC, which has also been successful in selling the arena on electric heating. The commission includes Leslie Bowman, chairman; H. H. Miller and C. L. Roth. A. H. Roth is manager.

A. E. Atkinson, a Trenton PUC commissioner from 1950 to 1960, died recently in Trenton.

Henry Little, general manager of Brockville PUC, announced that over 50 per cent of the buildings constructed in Brockville in 1964 were electrically heated.

Nepean Township recently passed a bylaw making underground electrical wiring compulsory in all new subdivisions built in the township.

Outdoor lighting is scheduled to play a leading role in the festivities associated with Stratford's first winter carnival, according to the Stratford Beacon-Herald. The carnival is to be held February 6 to 13.

Nipigon Township Hydro recently entertained three families who are building all-electric homes. The guests were welcomed to the dinner by Gordon Waghorn, chairman of the commission, who pointed out that Nipigon now has five all-electric homes, three homes which have been converted to electric heating, and five using supplementary electric heating. In addition, there were three commercial buildings and modern motels heated electric-

In an effort to further simplify electrical inspection services, revised inspection fees under three categories will become effective January 1, 1965. Details may be obtained from the 75 local Ontario Hydro electrical inspection offices across the province.

Southerner Moves North



A "Texas Tower", developed for off-shore oil drilling in the Gulf of Mexico, was used by McNamara Marine for the first time in Canada to drill anchor holes for an ice boom across the entrance of the Niagara River between Fort Erie and Buffalo.

The boom, approved by the International Joint Commission, is expected to alleviate ice conditions which have restricted power production on the Niagara in the past. Being built for Ontario Hydro and the Power Authority of the State of New York, the boom will assist in the formation of a more stable ice cover on Lake Erie.

The Texas Tower, a large square floating deck, has a long steel "leg" on each corner. The tower is floated into position over the drill site and the legs are lowered to the bottom. The deck is then jacked up until it clears the surface of the water. If the lake gets rough, the platform can be jacked up over the waves.

The 8,000 pound drill-bit on the tower is capable of drilling through one foot of rock per hour. Drilling started in September and was completed in mid-November. Crews are now grouting the anchors in position.

Lambton capacity to be doubled

Ontario Hydro recently announced plans to double the size of the new Lambton Generating Station near Sarnia - raising its capacity to 2,000,000 kilowatts by 1971.

Robert J. Boyer, MPP, 2nd vice-chairman of Hydro, told the Sarnia Lions Club that two additional 500,000kilowatt generating units will be installed at the coalburning power station near Courtright. Preliminary work on this station has started and construction will commence next spring.

Outlining reasons for increasing the size of the plant, Mr. Boyer said Hydro is re-organizing its policy of purchasing steam boilers, nuclear reactors, turbo-generators and the auxiliary equipment for both coal-fired and nuclear stations.

"Since it takes five years or more to bring one of these plants into service, we are ordering the necessary generating equipment now so that it will be manufactured and ready before the beginning of the next decade."

The speaker emphasized that the decision to order four duplicate units for the Lambton plant will result in savings of several million dollars in engineering, construction and purchasing costs.

He also stressed that Hydro's power development program includes plans for expansion of nuclear-electric stations. "We are already exploring an extension of this program on a similar basis, and fully anticipate meeting the expected power demands of 1975 by providing a capacity of some 3.2 million kilowatts in nuclear power stations."

When in full operation, the capacity of the Lambton station will be approximately equal to all of Hydro's Niagara River generating plants.

BACK CURRENTS

Still having trouble shopping for Aunt Myrtle, Uncle Harry and the man who has everything? Perhaps the following list will be helpful. It appeared in The Bulletin, forerunner to Hydro News, in November, 1915, under the heading "A list of suggestions for perplexed customers." Surprising how many electrical items were available "away back when".

The suggestions:

For Children — battery, bicycle lamp, Christmas tree lighting outfit, corn popper, electric engine, electric top, mechanical toys (motor operated), optical illusion box, permanent magnet, picture projector, shock coil, telegraph instrument, telephone bank, toy fan, toy electric range.

For Men — alarm clock, auto battery lamp or lantern, auto engine warmer, bed lamp, cigar lighter, drink mixer, electric horn, portable shaving mirror, silk hat iron, traveler's lamp, traveling iron, traveling stove, vibrator.

For Women — automobile (electric), beauty lamp, cereal cooker, chafing dish, coffee pot, dish washer, disc stove, egg boiler, egg beater, electric comb, electric range, flat iron, home ironing machine, illuminated mirror, heating pad, immersion heater, plate warmer, radiator, samovar, sewing machine motor, utility motor, vacuum cleaner, washing machine.

For Older People — Bed lamp, electric bath cabinet, hearing devices, heating pad, medical battery, nurse signal, radiator, sterilizer, toaster-stove, ventilating fan, water heater.

New Line Techniques



The first full-scale demonstration of repair work on energized 8,000 volt conductors using Class Three rubber gloves was held at Clinton recently. The event was witnessed by Ontario Hydro line maintenance experts, above. Favorable reports suggest the possible introduction of this technique for 8,000 volt work to most of the Commission's 1,000 linemen.

Automatic Meter Reading

Automatic meter reading has moved a step closer to reality, according to the New York Times Service. An experimental electronic system was attached directly to both electric and gas meters in homes in Owosso, Michigan. During the 16-month field test, the meters were read automatically over telephone lines.

A special device is placed on the meter so that it can be called electronically using standard telephone company equipment and lines. The meter answers the phone call by sending its reading over the line to a data receiver. After processing, the data is fed to a computer that automatically figures the amount owed and types the customer's bill.

The experiment was conducted jointly by General Telephone of Michigan, the Transitel International Corporation and the Consumers Power Company of Michigan. □

Old River Dam To Be Removed

Demolition work has begun to remove the ruins of an old mill at Hawkesbury which is obstructing the flow of the Ottawa River to Hydro-Quebec's Carillon power project downstream.

Harry Hustler, Ontario Hydro's director of property, said a contract for the work valued at approximately \$50,000 had been awarded to Bertrand & Freres of L'Orignal.

The ruins of the mill and dam are situated on the upstream shore of Chenail Island and extend to Large Island in the Ottawa River. First stage of the job, which is being done on behalf of Hydro-Quebec, will involve underwater blasting of reinforced concrete sections of the collapsed dam. A causeway will be built for removal of debris.

Mr. Hustler said the ruins were in dangerous condition and represented a hazard to the safety of children playing in the area.

More Heavy Water Needed

Due to expansion in the nuclear power field, Atomic Energy of Canada Limited is inviting Canadian companies to submit proposals for further production of heavy water in Canada. The heavy water produced by Deuterium of Canada's new plant now under construction at Glace Bay, N.S., will be insufficient to meet increasing demands. The requirements of Ontario Hydro's 1,000,000-kilowatt nuclear power plant, planned for Pickering Township, could not be met in time from the present Nova Scotia source.

Welland's "Mr. Hydro" Retires

More than 38 years of devoted public service came to a close last month for T. W. Houtby, secretary-treasurer and consultant of the Welland Hydro-Electric Commission. At a retirement banquet held in his honor, Mr. Houtby was presented with a portable television set by the commission.

James Arvay, chairman, described Mr. Houtby as a real community man, who had served on many public boards. "There are very few public officials who give their services so unstintingly; not only to Hydro but in all civic areas", he said. In recognition of Mr. Houtby's service, a sub-station, now under construction will be named in his honor.

Mr. Houtby's career with Welland Hydro began in 1926 and at one time he served as both general manager and secretary-treasurer. He was president of District 5, AMEU, in 1959, and served twice as secretary of District 5, OMEA.

Off to Kuwait

L. D. Jackson of Ontario Hydro's Survey Department has been granted a leave of absence to supervise a hydrographic survey of a waterfront redevelopment project in Kuwait, on the Persian Gulf.

October Energy Report

Primary energy provided by Ontario Hydro in October 1964, totalled 3.48 billion kilowatt-hours, an increase of 9.3 per cent over the same month a year ago.

For the first 10 months of 1964, the total is 33.27 billion kilowatt-hours, up 8.1 per cent over the same period last year

Adjusted for seasonal influences, primary energy demand in October was 3.48 billion kilowatt-hours, 1.7 per cent more than the previous month.

The seasonally adjusted total for October represents 41.81 billion kilowatt-hours at annual rates. This is 300.6 per cent of the energy demand in 1949.

OFF THE WIRES



■ In a recent address to the Electric Club of Toronto, J. M. Hambley, general manager of Ontario Hydro, deplored the average employee's complete lack of interest in selling his neighbour on electrical appliances. His point makes interesting speculation.

What if every employee turned salesman and set a single appliance as his personal sales goal? At the present time there are some 23,000 people employed by Ontario Hydro and the associated municipal utilities.

But it goes farther than that. As Mr. Hambley pointed out, "What is good for the industry as a whole, is good for each one of us individually." So we must add to our sales force every employee of all the electrical manufacturers, distributors, dealers and contractors.

With a minimum of effort, such an army would surely have a beneficial effect on all aspects of the industry from generation and transmission to distribution and utiliza-

On a more personal level, the writer is proud to report that he has already attained his quota. This summer he persuaded the man next door to trade in his noisy gasoline lawnmower on the latest electrical model.

Not only did this increase weekend power consumption on the Hydro system, but it made his Sunday morning nap a lot more enjoyable.

■ Winnipeg and Manitoba Hydro systems are going all out to promote the sale of electric interior heaters for autos and they have a set a goal of 35,000 units. The campaign idea originates with the Canadian Electrical Association. Closer to home, Stouffville PUC plans to send out bill stuffers advising customers of the heaters.

It sounds like the right kind of load from the utility point of view and we were surprised, in looking back over old copies of The Bulletin, forerunner of Hydro News. to find how long the auto has figured in the marketing plans of utilities. The October, 1917, edition had this to say:

"The sale of immersion heaters for preventing the freezing of water in automobile radiators may be an untried field in your community. . . . A canvass during the course of a very cold evening ought to prove exceedingly productive of sales.'

Browsing through these bulletins, nearly 50 years old, suggests that there really is very little new under the sun. Among the themes prevalent then: time payment

plans for appliance sales; electric heating cost estimates; what a penny will buy in appliance performance; and the need for

- The number of hunters shot this year as the result of being mistaken for rabbits, porcupines and other animals closely resembling the homo sapiens species seems to be somewhat lower but Hydro appears to figure in one of the most absurd. A Hydro helicopter patrolling the Mountain Chute area was hit by a bullet and while the damage was minor, it might have been very serious indeed. It cost the youthful hunter \$110 in fines so that at least one nimrod will be able to tell an aircraft from a partridge the next time he sees one.
- Practically every aspect of the late President Kennedy's tragic assassination and memorable funeral were relived by sympathetic persons all over the world on the anniversary of his death but one facet which largely escaped notice was the record of the event written by the graphs of electrical utilities across the continent.

The day they buried the President, power demands declined by an estimated 25,000,000 kilowatts on the Interconnected Systems Group of electric utilities, which cover an area stretching from James Bay to the Gulf of Mexico. Their combined capacities total 146,000,000 kilowatts.

This unprecedented drop — almost equal

good customer relations.



Merry Christmas

Christmas is the season of happiness, a time for giving and receiving gifts. Give the gift of health with your contribution to Christmas Seals.

Fight TB with Christmas Seals to the combined power demands of Michigan, New York State and Ontario occurred as factories shut down or turned off their machines while millions watched the funeral on television.

Frequency variations were another phenomena. Ontario Hydro records show that, starting at 11:47 a.m., November 25. frequency soared to 60.9 cycles over a period of 11 minutes — the largest deviation from normal since Hydro started parallel operation with ISG in 1962.

The incident is a striking illustration of the inter-relationship between the interconnected systems whose operations are finely tuned to the power demands of millions of people in a vast area. It is indeed fascinating to contemplate thousands of generators turning in perfect harmony and to visualize millions of electric motors all geared to what might be considered a single source.

■ Merry Christmas and a Happy New Year are the customary greetings at this season and we most heartily endorse the tradition where our readers are concerned. But it is also the time when letters to Santa Claus are frequently left where they will do the most good. How our own personal message got into the hands of the printers defies understanding, but here it is in black and white. Dear Santa:

Because you were so good to me all during the year (annual consumption of electrical power in the province increased faster than the long term average) I will not request anything for myself but would ask you to fill the stockings of our loyal readers with the following:

- (1) Rose colored glasses (through which to view the contents of Hydro News).
- (2) Electrical appliances of all descriptions (particularly those with favourable load building characteristics).
- (3) Red Ink (with which to record the progress of their competitors).
- (4) Ball point pens or typewriters (in order to keep ye olde editor supplied with news) and:
- (5) Good quality chamois (with which to keep the utility image shiny and bright during 1965).
- P.S. Please do not take it as a personal affront if you cannot get into our readers home by the usual route. Most of them live in all-electric houses and you will have to get used to doors, anyway, as chimneys grow scarce in the years ahead.

10

SEASON'S GREETINGS

| JANUARY | | | | | | | FEBRUARY | | | | | | | | | MARCH | | | | | | | |
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